Nokia vs. Apple Infringed / Infringing Map

On 23 Oct 2009, Nokia filed a lawsuit against Apple, alleging its iPhone infringes Nokia's ten patents: U.S. Patent Nos. 5,802,465, 5,862,178, 5,946,651, 6,359,904, 6,694,135, 6,775,548, 6,882,727, 7,009,940, 7,092,672, and 7,403,621. Based on Nokia's allegations, "Each of the patents-in-suit is essential to one or more of the following standards: the Global System for Mobile Communications ("GSM") Standard, the Universal Mobile Telecommunications System ("UMTS") standard, and the Institute of Electrical and Electronic Engineers ("IEEE") 802.11 Standard."

(C.A. NO. 09-791-GMS);

Using Patentics auto-calculated Infringed/Infringing Map on Nokia (the infringed) and Apple (the infringing), for these ten standards-essential patents, none of them are ranked as results. This demonstrates that Apple was not a part of the Standard-Setting-Process (SSP) in its early phases and was not developing competing technologies and/or applied for patents.

On 8 May 2010, Nokia filed another lawsuit against Apple claiming that its iPad 3G and iPhone infringe five of its patents, U.S. Patent Nos. 6,317,083, 6,348,894, 6,373,345, 6,603,431, and 7,558,696. For these five patents, which are non-standards-essential, two (U.S. Patent Nos. 6,317,083, 6,348,894) are ranked in the results by Patentics. This demonstrates that Apple might be implementing similar competing technologies that were patented by Nokia prior to Apple, and if these Apple patents, which were applied for later than Nokia's, and are ranked as highly relevant to and covered by Nokia's patents, were embodied in Apple products, it might imply Apple's probable infringement of Nokia's patents.

(C.A. NO. 10CV249)

Nokia has one of the broadest IP portfolios in the telecom industry with over 10,000 families of patents, and Apple has one of the most sophisticated IP portfolios in the software industry. Yet, there's no comprehensive patent system allowing competitors to easily keep tabs on each other during their own product development. The Competitors Infringed/Infringing Map computed by Patentics quantitatively provides a real-time patent strength/vulnerability analysis with pin-pointing accuracy that nails individual patents which may be questionable among competing parties.

Please check Patentics auto-calculated Apple (as the infringed) vs. Nokia (as the infringing) Infringed/Infringing Map, where Patentics has ranked results that match up with Apple's counterclaims of Nokia allegedly infringing Apple's 13 non-standards-essential patents.

The following contents are all caculated and generated automatically by Patentics program.

Nokia Teams lead over Apple Teams Analysis

Nokia Inventor(Team)	Apple Inventor(Team)	Link	c1	c2	c12
Zalewski;ThomasW.	Lin;Gloria	3.15	8	17	8
Hannuksela;Miska	Haskell;BarinGeoffry	2.94	36	38	14
Le;Khiem	Tucker;Rusty	2.68	13	30	10
Das;Debashis	Arrouye;Yan	2.18	6	5	5
Lindberg;Phillip	Rohrbach;MatthewDean	2.18	6	5	5
Wilkinson;JeffreyMiles	Rosenblatt;Michael	1.88	6	12	6
Ollikainen;Jani	Chiang;Bing	1.22	8	44	8
Alve;Jukka	Zweig;JonathanM.	0.97	10	14	6
Lainema;Jani	WU;Hsi-Jung	0.97	36	44	11
Bicsak;Attila	Gonion;JeffryE.	0.94	3	3	3
Gillet;Michel	Hauck;JerroldV.	0.94	3	3	3
Kabrell;Carl	Ali;Ihab	0.94	3	3	3
Li;Xiang	Tucker;Rusty	0.75	6	30	6
Pedersen;Claus	vanOs;MarcelMWA	0.74	4	9	4
Eggleston;SteveW	Hill;RobertJ.	0.61	9	12	5
Hannuksela;Miska	HASKELL;BarinGeoffry	0.58	36	12	7
Davidsson;Marcus	Melton;Don	0.57	3	5	3
Zitting;BrentR.	Mardinian;Olivier	0.57	3	5	3
Lainema;Jani	SHI;Xiaojin	0.50	36	14	7
Ma;Jian	Tucker;Rusty	0.44	5	30	5

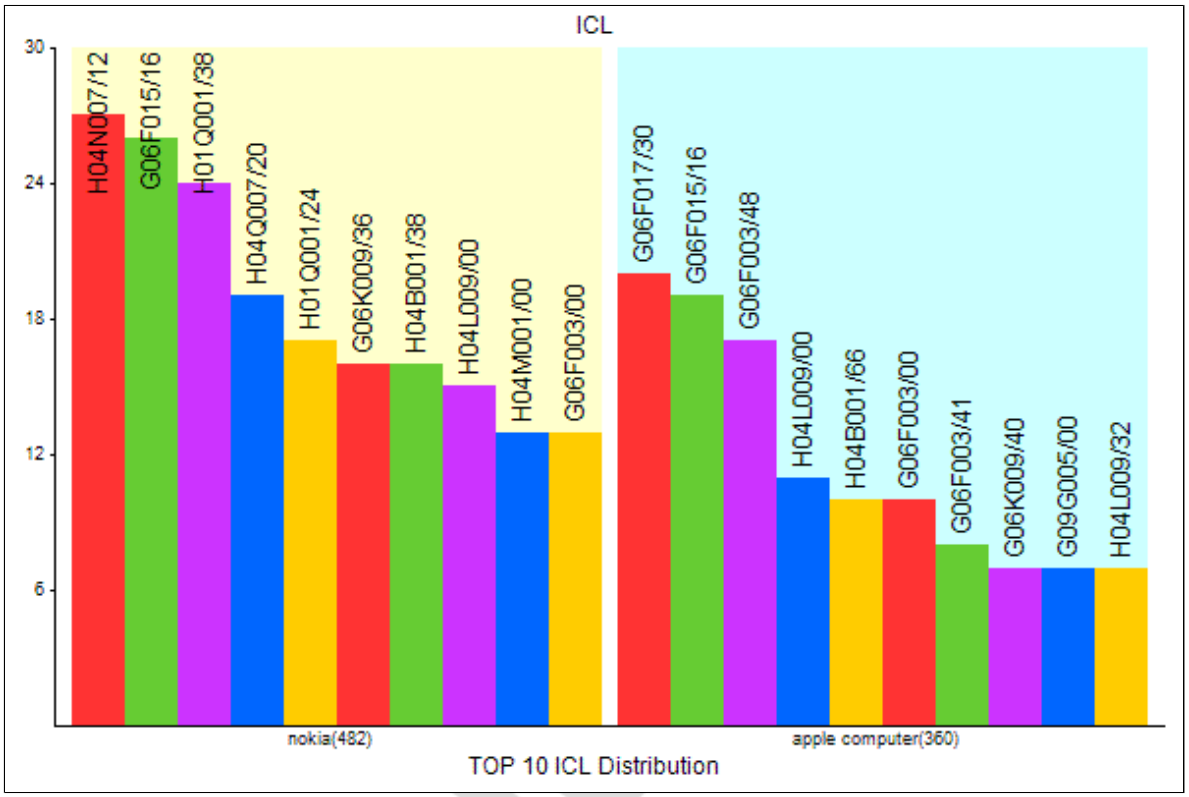
Nokia Inventors: 324; Apple Inventors: 201; Inventor factor: 1.61; Strength factor: 1.91

Competitive Leads Timeline

Competitive Timeline: 51

Nokia Competitive Leads(*): 15.67; Apple Competitive Leads(*): 25.25

Nokia Inventor(Team)		Apple Inventor(Team)	
Inventor	**Application Date**	**Inventor**	**Application Date**
* Hannuksela;Miska	19991102	Haskell;BarinGeoffry	20021108
Das;Debashis	20021220	* Arrouye;Yan	19980508
Lindberg;Phillip	20060608	* Rohrbach;MatthewDean	20050926
* Ollikainen;Jani	19980324	Chiang;Bing	20071218
Gillet;Michel	20041007	* Hauck;JerroldV.	20000118
Kotiranta;Atte	20041230	* Opstad;DavidG.	19990507
* Wang;Hanyang	20011218	Chiang;Bing	20071218
* Pyhalammi;Seppo	20040630	Marriott;Greg	20041025
Kalevo;Ossi	20010119	* Wu;Hsi-Jung	19960703
Riis;So	20010831	* Bellegarda;JeromeR.	19961217
Riis;Soren	20011219	* Bellegarda;JeromeR.	19961217
Tian;Jilei	20021111	* Bellegarda;JeromeR.	19960213
Ridge;Justin	20020312	* Chu;Ke-Chiang	19930430
Card;James	20021211	* Cheshire;StuartDavid	20001212
Smith;GregoryJ.	20020412	* Cheshire;StuartDavid	20001212
* Lainema;Jani	19970919	Dumitras;Adriana	20030903
Vahtola;Miika	20060130	* Chaudhri;ImranA.	20040625
* Karczewicz;Marta	20010427	Haskell;BarinGeoffry	20021108
Wang;Ru-Shang	20030321	* LeCroy;Chris	20010927
* Ojanpera;Juha	20040823	Kuo;Shyh-Shiaw	20050419
* Karczewicz;Marta	19990811	Dumitras;Adriana	20030707
* Kalevo;Ossi	20000118	Bilbrey;Brett	20031029
* Wang;Ye-Kui	20030428	Haskell;BarinGeoffry	20030707
Hill;Tapio	20021015	* Kiddy;RaymondR.	20010725
Saarinen;Markku-Juhani	20010517	* Crandall;RichardE.	19970718
Le;Huihua	20031014	* Tucker;Rusty	20001006
Tian;Jilei	20021111	* Fredenburg;Timothy	19960618
Lindberg;Phillip	20060608	* DiFonzo;JohnC.	20050926
Card;James	20021211	* Cheshire;Stuart	20010119
* Trimeche;Mejdi	20040709	MacDonald;LindsayWilliam	20040818
* Ozden;Sinasi	20050426	Zhang;Zhijun	20060905
* Nenonen;Petri	20001222	MacDonald;LindsayWilliam	20040818
Rantanen;Henry	20031014	* Marcu;GabrielG.	19980615
Swami;YogeshP.	20060203	* Siegmund;DieterW.	20050823
Nurmi;Mikko	20040109	* Chaudhri;Imran	20020318
* Kalevo;Ossi	20000118	Dumitras;Adriana	20030813
* Karczewicz;Marta	19990811	Handley;Maynard	20030430
* Hallapuro;Antti	20010830	Kumar;Roger	20030430
Smith;GregoryJ	20030922	* Cheshire;StuartD.	20020319
* Arkko;Aimo	19990528	Zhang;Zhijun	20060905
* Ozden;Sinasi	20050426	Schlub;RobertW.	20070104
* Hannuksela;Miska	20000428	Nie;Xiaochun	20030430
* Ozden;Sinasi	20050426	Hill;RobertJ.	20061106
Nurmi;Mikko	20060419	* Forstall;Scott	20030106
Wang;Ru-Shang	20040223	* Haskell;BarinGeoffry	20021108
Bouet;Stephane	20011220	* Serenyi;Denis	20010108
* Kautto-Koivula;Kaisa	20031217	Bavor;Clay	20050801
Kuusisto;Mika	19970108	* Bailey;RobertL.	19940509
* Ronkka;Risto	19990120	Anderson;EricC.	20010928
Vesterinen;Timo	20060822	* Yu;DeanT.	19951113
Zhao;Sheng	20010330	* Christiansen;KevinM.	19941116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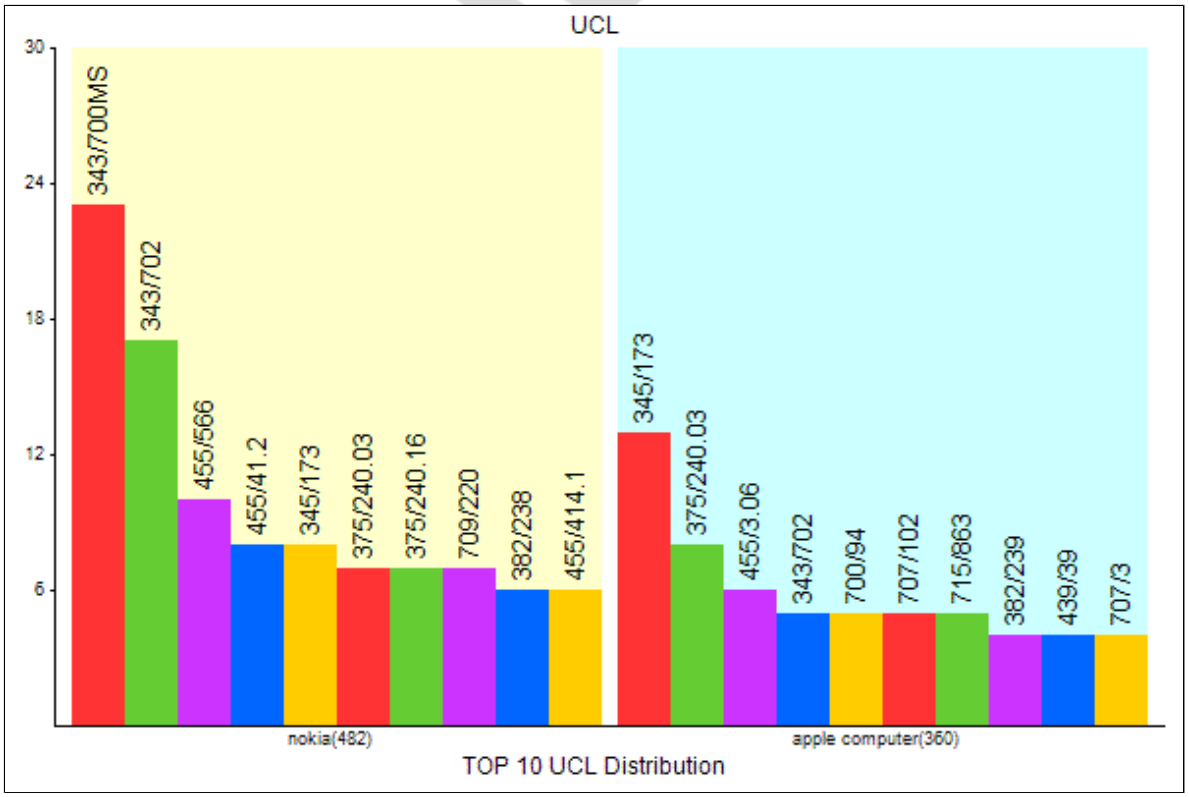
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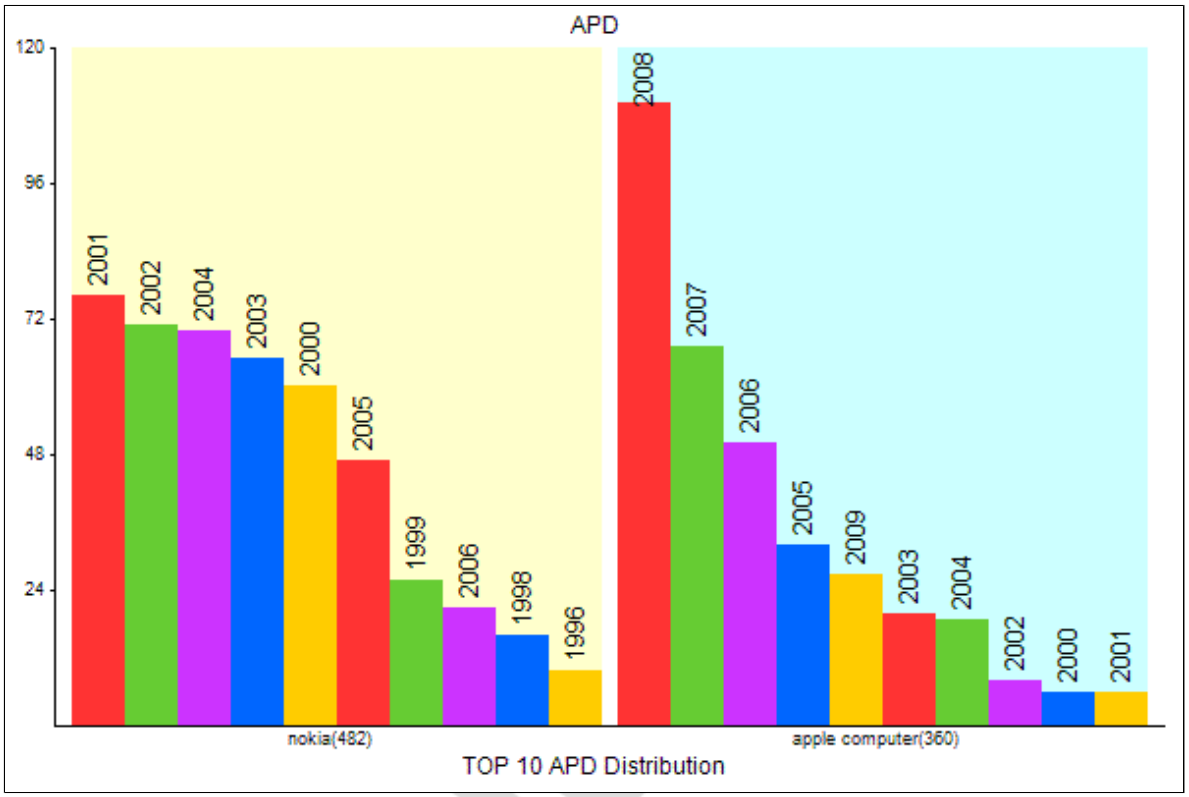
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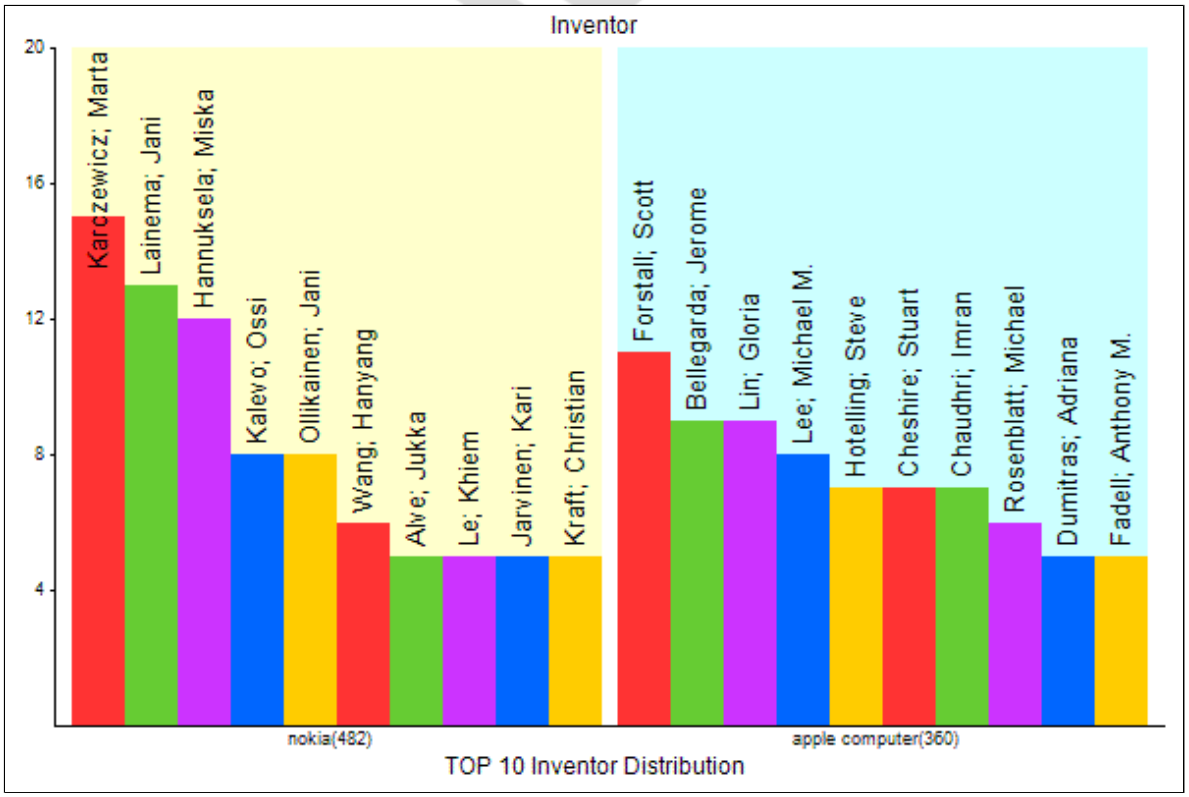
Inventor
20
16
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4
Karczewicz; Marta
Lainema; Jani
Hannuksela; Miska
Kalevo; Ossi
Ollikainen; Jani
Wang; Hanyang
Alve; Jukka
Le; Khiem
Jarvinen; Kari
Kraft; Christian
Forstall; Scott
Bellegarda; Jerome
Lin; Gloria
Lee; Michael M.
Hotelling; Steve
Cheshire; Stuart
Chaudhri; Imran
Rosenblatt; Michael
Dumitras; Adriana
Fadell; Anthony M.
nokia(482)
apple computer(360)
TOP 10 Inventor Distribution

Competing Fields and Technologies

Quantisation	Quantization factor	Adaptive quantization	Video coding system
Antenna component	Dual-band antenna	Planar inverted	Dual band antenna
Voltage scaling	Switched mode	Power processor	Regulator power
Multimedia viewer	User-customized	User preference setting	Instant messenger service
Visually impaired user	Displayed text	Entering text	Text entry
Link-layer	Communication flow	Link level	Multicast protocol
Security scheme	Secure messaging	Encryption service	Trusted system
Communication exchange	Communication management system	Mobile device communication	Wireless messaging

1437 results: Nokia probably-infringed(482) Apple probably-infringing(360)

PN	Title	Assignee	Inventors	Class	ICL	APD	Count	Rank	Sel
6,348,894	Radio frequency antenna	Nokia Mobile Phones Ltd.	Lahti; Saku	343	H01Q	20000510	0	100%	☑

Abstract: An RF antenna having a non-planar resonating region for radiating or receiving electromagnetic waves in order to convey communication signals between two electronic devices via a radio link. The resonating region is folded into at least two sections so that the radiating surface of one section is located on a different plane from the radiating surface of the other section. In order to optimize the input impedance of the antenna, an impedance matching part connected to the resonating region is used to provide a short circuit to the resonating region. A signal conduit part is used to feed signals to the resonating region in the proximity of the impedance matching part. Preferably, the antenna is integrated into a system connector of a hand-held communication device so as to allow the hand-held device to communicate with a communication network via a radio link.

MainClaim: An antenna operating in the radio frequency range to be used in a hand-held communication device having a system connector, said radio frequency antenna comprising:

a resonating region to radiate or receive electromagnetic waves carrying the communication signals; and

a feeding region coupled to the resonating region for impedance matching, wherein

the radio frequency antenna is integrated into the system connector so as to allow the hand-held communication device to communicate with a communication network via a radio link.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	96%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.

MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	96%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-

resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W. | Zavala; Juan | Caballero; Ruben	343	H01Q	20071213	8	95%	☐

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.
MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

6,317,083	Antenna having a feed and a shorting post connected between reference plane and planar conductor interacting to form a transmission line	Nokia Mobile Phones Limited	Johnson; Alan | Modro; Joseph	343	H01Q	19990716	0	100%	☑

Abstract: An antenna comprises a reference plane 204, a conductive polygonal lamina 202 disposed opposing the reference plane, and a feed section 206 coupled to the reference plane and the lamina. The feed section 206 is arranged as a transmission line. The feed section may comprise at least two planar conductors 208 arrange parallel to each other, one of the planar conductors 208b being connected to the feed and the other of the conductors 208a being connected to the reference. The feed section may be in the form of a coplanar strip.
MainClaim: An antenna comprising:

a reference plane;

a conductive polygonal lamina disposed opposing the reference plane; and

a feed section extending from the reference plane to the lamina and coupled to the reference plane and the lamina;

wherein the feed section comprises:

a first conductor for providing a feed signal to the conductive lamina, and

a second conductor connected to the reference plane,

wherein first and second conductors together interact to form a transmission line to contain and guide said feed signal between said first and second conductors.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
7,379,501	Differential coding of interpolation filters	Nokia Corporation	Lainema; Jani	375	H04N	20030114	0	100%	☐

Abstract: A video coding system for coding a sequence of video frames each having an array of pixel values is provided. The system includes an interpolation filter to reconstruct sub-pixel values for use in the inter-frame prediction

process. The coefficients of an interpolation filter are obtained differentially with respect to a predefined base filter in order to provide a set of difference values. As the base filter coefficients are known to both encoder and decoder and they are statistically close to the actual filters used in the video sequence, the decoder can reconstruct the pixel values based on the set of difference values.
MainClaim: A method for encoding an image in a video sequence, said method comprising: reconstructing sub-pixel values in a reference frame with an interpolation filter having a plurality of coefficient values; performing prediction of a block to be coded based on the reconstructed sub-pixel values; coding the coefficient values of the interpolation filter differentially with respect to coefficient values of a base filter for forming a set of difference values, wherein at least one of the coefficient values of the base filter is a non-zero value, and providing said set of difference values in encoded video data.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	98%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	97%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	97%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda

threshold.

7,408,991	Error detection in low bit-rate video transmission	Nokia Mobile Phones Limited	Hourunranta; Ari	375	H04B	20031028	0	100%	☐

Abstract: A method for decoding video data blocks using variable length codes, comprising transforming information about the spatial frequency distribution of a video data block into pixel values. Prior to said transformation, a first reference value (Xref) representing the abruptness of variations in information about spatial frequency distribution within the block is generated, after said transformation, a second reference value (Δ) representing the abruptness of variation in certain information between the block and at least one previously transformed video data block is generated. The first reference value (Xref) is compared to a first threshold value (TH1) and the second reference value (Δ) to a second threshold value (TH2); and as a response to either of the first (Xref) and second reference values (Δ) being greater than the first (TH1) and respectively the second threshold value (TH2), an error in the block is detected.
MainClaim: A method comprising: transforming information about the spatial frequency distribution of a video data block into pixel values; generating, prior to said transformation, a first reference value representing the variations in information about spatial frequency distribution within the block; generating, after said transformation, a second reference value representing the abruptness of variation in certain information between the block and at least one previously transformed video data block from a same frame as the block; comparing the first reference value to a certain first threshold value and the second reference value to a certain predetermined second threshold value; detecting an error in the block, as a response to either of the first and second reference values being greater than the first and respectively the second threshold value; dividing DCT coefficients of the block into at least two parts, wherein the coefficients of the first part are associated with higher frequencies than the coefficients of the second part; generating a first reference value from the coefficients of the first part; generating a first threshold value from the coefficients of a set of coefficients not belonging to the first part; forming at least two sets of DCT coefficients from the coefficients not belonging to the first part; generating a first reference value for each formed set of DCT coefficients; generating a corresponding first threshold value for each formed set of DCT coefficients; comparing, for each of the sets, the first reference value of the set with the first threshold value of the set; and detecting an error in the block, as a response to any of the first reference values of the set being greater than the corresponding first threshold value of the set.

2010/0086063	QUALITY METRICS FOR CODED VIDEO USING JUST NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Haskell; Barin Geoffry | Shi; Xiaojin	375	H04N	20090331	8	96%	☐

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.
MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

2008/0253450	METHOD AND SYSTEM FOR VIDEO RATE CONTROL	APPLE INC.	Lin; Ken Kengkuan	375	H04B	20070413	3	95%	☐

Abstract: A method and system are provided for encoding a picture. The method includes encoding the picture into a first encoded picture using a first universal quantizer. If a size of the first encoded picture is greater than a maximum picture size, the method includes encoding the picture into a second encoded picture using small quantizers for smooth regions of the picture and large quantizers for complex regions. If a size of the second encoded picture is still greater than a maximum picture size, the method includes encoding the picture into a third encoded picture with revised quantizers for complex regions and dropping high frequency coefficients if necessary to ensure the encoded picture size never exceeds the maximum size.
MainClaim: A method of coding a picture within a video stream with a limited number of coding passes, comprising:on each pass, coding at least one slice associated with the picture, image data of the slice being subject to coefficient transform and to quantization by a quantization parameter, whereinon a first pass, quantizing all slices with a first value of the quantization parameter that is common to all slices of the picture,on a second pass, which is reached if a size of a coded picture data obtained from the first pass exceeds a predetermined limit, encoding a first set of selected slices with a second value of the quantization parameter,on a third pass, which is reached if a size of coded picture data obtained from the second pass exceeds the predetermined limit, encoding a second set of selected slices with a third value of the quantization parameter, andwhen a pass generates coded picture data that satisfies the predetermined limit, outputting the coded picture data to a channel.

2008/0253448	METHOD AND SYSTEM FOR RATE CONTROL	APPLE INC.	LIN; Ken Kengkuan | CHOU; Peter Hungye | AKRAMULLAH; Shahriar Mohammad	375	H04B	20070413	1	95%	☐

Abstract: A method and system are provided for encoding a picture. The method includes encoding the picture into a

first encoded picture using a first universal quantizer. If a size of the first encoded picture is greater than a maximum picture size, the method includes encoding the picture into a second encoded picture using a second universal quantizer. Before a second-pass encoding, the target size and maximum size for each slice is determined. During the second pass encoding, if a size of the encoded slice is greater than the maximum slice size, the method includes encoding the slice using a third local quantizer. If a size of the encoded slice is still greater than a maximum slice size, the method includes dropping coefficients from the encoded slice to ensure that the encoded size never exceeds the maximum size.

MainClaim: A method of coding a picture within a video stream with a limited number of coding passes, comprising:on each pass, coding the picture as a plurality of slices and macroblocks, image data of the macroblocks being subject to coefficient transforms and to quantization by a quantization parameter, whereinon a first pass, establishing the quantization parameter as a first value that is common to all slices of the picture,on a second pass, which is reached if a size of a coded picture data obtained from the first pass exceeds a predetermined limit, revising the quantization parameter to a second value that is common to all slices of the picture,on a third pass, which is reached if a size of a code slice data obtained from the second pass exceeds a predetermined slice limit, revising the quantization parameter on a slice-by-slice basis, andwhen a pass generates coded picture data that satisfies the predetermined limit, outputting the coded picture data to a channel.

6,272,178	Video data encoder and decoder	Nokia Mobile Phones Ltd.	Nieweglowski; Jacek | Turker; Mustafa Ali | Kalevo; Ossi | Haavisto; Petri	375	H04N	19981015	0	100%	☐

Abstract: This invention relates to compression of prediction error in motion compensated video coding schemes. Prediction frame and motion vectors are used to extract useful information about the properties of the prediction error signal, e.g. its location, directionality, etc. This information does not need to be transmitted because the decoder of the proposed system includes means to extract this information. Information extracted by the encoder and decoder is used to adapt prediction error coding scheme which gives substantial bitrate reductions.

MainClaim: Encoder for performing motion compensated encoding of video data, comprising:

means (8) for estimating motion vectors describing scene motion displacements of video frame pixels;

means (7) for predicting a video data frame (P) based on a first video data frame (R) and said motion vectors;

means (1) for calculating a prediction error frame (E) based on said predicted video data frame (P) and on a second video data frame (I);

means (2) for encoding said prediction error frame (E) and obtaining prediction error data;

means (4) for transmitting said motion vectors and said prediction error data to a decoder;

said means (2) for encoding said prediction error frame (E) comprising:

means (24) for partitioning said prediction error frame into a plurality of areas; and

determination means for performing at least one of the following operations: determination of areas in said prediction error frame (E) to be encoded and determination of at least one coding scheme for each area to be encoded of said prediction error frame (E); and

area encoding means (26) for encoding the areas to be encoded of said prediction error frame (E) in accordance with the at least one determination operation of said determination means;

wherein said determination means is adapted to analyse properties of said predicted video data frame (P) and to perform said at least one determination operation based on said analysis.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	97%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.

MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight

contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2010/0086063	QUALITY METRICS FOR CODED VIDEO USING JUST NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Haskell; Barin Geoffry | Shi; Xiaojin	375	H04N	20090331	8	96%	☐

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.
MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	96%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

6,879,268	Adaptive variable length coding of digital video	Nokia Corporation	Karczewicz; Marta	341	H03M	20030729	0	100%	☐

Abstract: The invention relates to a method of adaptive variable length coding in which a set of data symbols comprising a certain first number of data symbols having a first value and a certain second number of data symbols having values other than the first value are represented by variable length codewords. According to the invention, at least one characteristic of the variable length coding applied to the data symbols is adapted according to the second number of data symbols which have values other than the first value. The invention also relates to a corresponding method of variable length decoding, as well as an encoder and decoder which implement the variable length coding and decoding methods according to the invention.
MainClaim: A method of variable length coding a set of data symbols comprising a certain first number of data symbols having a first value and a certain second number of data symbols having values other than said first value, wherein at least one characteristic of the variable length coding applied to the data symbols is adapted according to said certain second number of data symbols which have values other than the first value.

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent | Guo; Haitao | Oslick; Mitchell	382	G06K	20040330	8	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.

MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

2008/0253461	METHOD AND SYSTEM FOR VIDEO ENCODING AND DECODING	APPLE INC.	LIN; Ken Kengkuan | CHOU; Peter Hungye | OSLICK; Mitchell Howard | WALLACE; Gregory Kent | AKRAMULLAH; Shahriar M.	375	H04B	20070413	5	97%	☐

Abstract: Methods and systems are provided for encoding and decoding a video stream. Each picture in a video stream can be divided into slices, each of which contains a contiguous row of macroblocks. All the blocks corresponding to a single video component within each slice can then be used as the basis for encoding the picture. By decomposing each picture into slices, the video stream can be efficiently converted for displays of varying size and/or quality. The encoded bitstream can include a slice table to allow direct access to each slice without reading the entire bitstream. Each slice can also be processed independently, allowing for parallelized encoding and/or decoding.

MainClaim: A method of encoding a video stream, comprising:organizing source image data into a plurality of slices, each slice including multiple macroblocks having the same macroblock row in a source image and each macroblock including multiple blocks;for a plurality of blocks within a slice, generating transform coefficients for each of the plurality of blocks, each transform coefficient calculated for a video component block position; andat each block position, run-length coding the transform coefficients across the plurality of blocks to form an encoded bitstream.

6,690,307	Adaptive variable length coding of digital video	Nokia Corporation	Karczewicz; Marta	341	H03M	20020122	0	100%	☐

Abstract: The invention relates to a method of adaptive variable length coding in which a set of data symbols comprising a certain first number of data symbols having a first value and a certain second number of data symbols having values other than the first value are represented by variable length codewords. According to the invention, at least one characteristic of the variable length coding applied to the data symbols is adapted according to the second number of data symbols which have values other than the first value. The invention also relates to a corresponding method of variable length decoding, as well as an encoder and decoder which implement the variable length coding and decoding methods according to the invention.

MainClaim: A method of variable length encoding a set of data symbols comprising a number of first data symbols having a first value and a number of second data symbols having values other than said first value, the encoding method comprising performing a mapping operation between said set of data symbols and a set of variable length codewords, in which variable length codewords are selected from said set of variable length codewords to form a set of encoded values comprising variable length codewords representative of the set of data symbols, wherein the set of variable length codewords and/or the mapping between said data symbols and said set of variable length codewords is adapted in dependence on said number of second data symbols.

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent | Guo; Haitao | Oslick; Mitchell	382	G06K	20040330	8	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.

MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

2008/0253461	METHOD AND SYSTEM FOR VIDEO ENCODING AND DECODING	APPLE INC.	LIN; Ken Kengkuan | CHOU; Peter Hungye | OSLICK; Mitchell Howard | WALLACE; Gregory Kent | AKRAMULLAH; Shahriar M.	375	H04B	20070413	5	97%	☐

Abstract: Methods and systems are provided for encoding and decoding a video stream. Each picture in a video stream can be divided into slices, each of which contains a contiguous row of macroblocks. All the blocks corresponding to a single video component within each slice can then be used as the basis for encoding the picture. By decomposing each picture into slices, the video stream can be efficiently converted for displays of varying size and/or quality. The encoded bitstream can include a slice table to allow direct access to each slice without reading the entire bitstream. Each slice can also be processed independently, allowing for parallelized encoding and/or decoding.
MainClaim: A method of encoding a video stream, comprising:organizing source image data into a plurality of slices, each slice including multiple macroblocks having the same macroblock row in a source image and each macroblock including multiple blocks;for a plurality of blocks within a slice, generating transform coefficients for each of the plurality of blocks, each transform coefficient calculated for a video component block position; andat each block position, run-length coding the transform coefficients across the plurality of blocks to form an encoded bitstream.

6,711,211	Method for encoding and decoding video information, a motion compensated video encoder and a corresponding decoder	Nokia Mobile Phones Ltd.	Lainema; Jani	375	H04N	20000508	0	100%	☐

Abstract: A method for encoding video information is presented, where a piece of current video information is segmented into macroblocks and a certain number of available macroblock segmentations for segmenting a macroblock into blocks is defined. Furthermore, for each available macroblock segmentation at least one available prediction method is defied, each of which prediction methods produces prediction motion coefficients for blocks within said macroblock, resulting in a certain finite number of available macroblock-segmentation--prediction-method pairs. For a macroblock, one of the available macroblock-segmentation--prediction-method pairs is selected, and thereafter the macroblock is segmented into blocks and prediction motion coefficients for the blocks within said macroblock are produced using the selected macroblock-segmentation--prediction-method pair. A corresponding decoding method, an encoder and a decoder are also presented.
MainClaim: A method for encoding video information including deriving prediction motion coefficients for blocks within a macroblock of a video frame being encoded from motion coefficients of at least one prediction block that is a previously encoded macroblock or block within said video frame, the method comprising:

segmenting the video frame into macroblocks;

defining a certain number of available macroblock segmentations that specify possible ways in which a macroblock can be segmented into blocks;

defining for each available macroblock segmentation at least one available prediction method thereby providing a certain finite number of available macroblock-segmentation--prediction-method pairs, each prediction method defining a method for deriving prediction motion coefficients for blocks within a macroblock using motion coefficients of at least one prediction block;

selecting for a macroblock one of the available macroblock-segmentation--prediction-method pairs; and

segmenting the macroblock into blocks and deriving prediction motion coefficients for the blocks within said macroblock using the selected macroblock-segmentation--prediction-method pair.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	96%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

7,295,612	Determining the number of unidirectional and bidirectional motion compensated frames to be encoded for a video sequence and detecting scene cuts in the video sequence	Apple Inc.	Haskell; Barin Geoffrey | Dumitras; Adriana | Puri; Atul	375	H04N	20030909	1	96%	☐

Abstract: Methods for processing a set of successive video frames in two passes to determine the number of bidirectional (B) and unidirectional (P) motion compensated frames to be encoded in a video coding system. During the first pass, motion vectors and motion costs are computed for each frame and a derived cost value is computed based on the motion cost of at least one frame. The derived cost value is used to determine the number (N_B) of B-frames to be encoded in the set of successive frames. In the second pass, the set of successive frames are encoded where N_B frames are encoded as B-frames and some or all motion vectors computed in the first pass are re-used in the second pass. A scene cut detection method is also provided where an impulse-like increase in a ratio of motion costs is monitored.
MainClaim: A method of processing a plurality of frames to determine a number of bidirectional motion compensated (B) frames to be encoded in a set of successive frames in the plurality of frames, the method comprising: a) computing motion vectors for at least one frame in the set of successive frames, wherein the computed motion vectors for each particular frame are based only on the particular frame and a preceding frame; b) determining a motion cost value for at least one frame in the set of successive frames; c) determining a derived cost value based on the motion cost value for at least one frame in the set of successive frames; and d) determining the number of B-frames to be encoded in the set of successive frames based on the derived cost value.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	96%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a

coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.

MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

6,954,502	Method for encoding and decoding video information, a motion compensated video encoder and a corresponding decoder	Nokia Mobile Phones Ltd.	Lainema; Jani	375	H04N	20040203	0	100%	☐

Abstract: A method for encoding video information is presented, where a piece of current video information is segmented into macroblocks and a certain number of available macroblock segmentations for segmenting a macroblock into blocks is defined. Furthermore, for each available macroblock segmentation at least one available prediction method is defined, each of which prediction methods produces prediction motion coefficients for blocks within said macroblock, resulting in a certain finite number of available macroblock-segmentation—prediction-method pairs. For a macroblock one of the available macroblock-segmentation—prediction-method pairs is selected, and thereafter the macroblock is segmented into blocks and prediction motion coefficients for the blocks within said macroblock are produced using the selected macroblock-segmentation—prediction-method pair. A corresponding decoding method, an encoder and a decoder are also presented.

MainClaim: An encoder for performing motion compensated encoding of video information, said encoder being arranged to derive prediction motion coefficients for blocks within a macroblock of a video frame being encoded from motion coefficients of at least one prediction block that is a previously encoded macroblock or block within said video frame, the encoder being further arranged to:

specify a certain number of available macroblock segmentations that define possible ways in which a macroblock can be segmented into blocks;

specify at least one available prediction method for each available macroblock segmentation, thereby providing a certain finite number of available macroblock-segmentation—prediction-method pairs, each prediction method defining a method for deriving prediction motion coefficients for blocks within a macroblock using motion coefficients of at least one prediction block;

select a macroblock-segmentation—prediction method pair among the available macroblock-segmentation—prediction method pairs;

segment a macroblock using the macroblock segmentation specified by the selected macroblock-segmentation—prediction-method pair; and

derive prediction motion coefficients for blocks within said macroblock using the prediction method specified by the selected macroblock-segmentation—prediction-method pair.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	96%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.

MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

	QUALITY METRICS FOR CODED VIDEO USING JUST		Haskell; Barin						

2010/0086063	NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Geoffry	Shi; Xiaojin	375	H04N	20090331	8	95%

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.
MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin	WU; Hsi-Jung		H04N	20090515	14	95%

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

6,856,701	Method and system for context-based adaptive binary arithmetic coding	Nokia Corporation	Karczewicz; Marta	Kurceren; Ragip	382	G06K	20011127	0	100%

Abstract: A method and system for image coding, wherein an image is divided into a plurality of blocks for scanning. The pixels values in the scanned block are represented by a plurality of level-run value pairs, wherein the level value is indicative of a non-zero pixel value and the run value is indicative of the number of consecutive zero pixel values preceding the non-zero pixel value. A plurality of contexts indicative of the level-run value pairs are conveyed to a decoder for allowing the decoder to reconstruct the image based on the contexts. The assignment of the contexts is also based on the level value of a preceding level-run pair. Additionally, instead of an end-of-block symbol, the number of non-zero coefficients is provided to the decoder prior to conveying the contexts thereto.
MainClaim: A method of image coding, wherein an image is divided in an encoder into a plurality of blocks having a plurality of pixels, each pixel having a pixel value, and a transform coding operation is performed on a block of pixels to produce a corresponding block of transform coefficient values, the block of transform coefficient values being scanned in a given scanning order to produce a scanned array of coefficient values arranged according to the scanning order, the method comprising the steps of:

representing the coefficient values in the scanned array by a plurality of number pairs, each of said number pairs having a first number and a second number; and

assigning the first numbers to one of a plurality of contexts representative of the first numbers such that the first number of a first number pair is assigned to a context at least partly in dependence on a first number of a second number pair.

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent	Guo; Haitao	Oslick; Mitchell	382	G06K	20040330	8	97%

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of

sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.

MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

2008/0253461	METHOD AND SYSTEM FOR VIDEO ENCODING AND DECODING	APPLE INC.	LIN; Ken Kengkuan | CHOU; Peter Hungye | OSLICK; Mitchell Howard | WALLACE; Gregory Kent | AKRAMULLAH; Shahriar M.	375	H04B	20070413	5	97%	☐

Abstract: Methods and systems are provided for encoding and decoding a video stream. Each picture in a video stream can be divided into slices, each of which contains a contiguous row of macroblocks. All the blocks corresponding to a single video component within each slice can then be used as the basis for encoding the picture. By decomposing each picture into slices, the video stream can be efficiently converted for displays of varying size and/or quality. The encoded bitstream can include a slice table to allow direct access to each slice without reading the entire bitstream. Each slice can also be processed independently, allowing for parallelized encoding and/or decoding.

MainClaim: A method of encoding a video stream, comprising:organizing source image data into a plurality of slices, each slice including multiple macroblocks having the same macroblock row in a source image and each macroblock including multiple blocks;for a plurality of blocks within a slice, generating transform coefficients for each of the plurality of blocks, each transform coefficient calculated for a video component block position; andat each block position, run-length coding the transform coefficients across the plurality of blocks to form an encoded bitstream.

6,738,423	Method for encoding and decoding video information, a motion compensated video encoder and a corresponding decoder	Nokia Mobile Phones Ltd.	Lainema; Jani | Karczewicz; Marta	375	H04N	20000121	0	100%	☐

Abstract: A motion compensated video coding method which can be applied especially in transfer of video streams using low transmission bit rate is presented. In the motion compensated coding method, the motion of picture elements between a piece of reference video information and a piece of current video information is estimated and then modeled using certain basis function and coefficients. The coefficients are quantized, and the quantizer is selected according to a certain selection criterion, for example, based on a target image quality or on a target transmission bit rate. Preferably the selection criterion is such that it automatically adjust the accuracy with which the motion of picture elements is represented to be related to the accuracy with which the prediction error information is represented. A decoding method, an encoder and a corresponding decoder are also described.

MainClaim: A method for encoding video information, comprising:

estimating the motion of a picture element between a piece of reference video information and a piece of current video information;

representing the motion of said picture element using a set of basis functions and associated motion coefficients thereby forming a model representative of the motion of said picture element,

forming prediction video information for the picture element from the piece of reference video information, using said

model representative of the motion of said picture element,

forming prediction error information representative of a difference between said prediction video information for the picture element and video information of the picture element, the prediction error information having a certain accuracy, wherein the method further comprises:

defining a set of motion coefficient quantizers for quantizing the motion coefficients of said model representative of the motion of said picture element;

selecting a motion coefficient quantizer from the set of motion coefficient quantizers, and

quantizing the motion coefficients using the selected motion coefficient quantizer, thereby representing the motion of said picture element with a certain accuracy,

said selected motion coefficient quantizer being selected using a predetermined selection criterion so that the accuracy with which the motion of said picture element is represented is compatible with the accuracy of said prediction error information.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	96%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

7,492,820	Rate control for video coder employing adaptive linear regression bits modeling	Apple Inc.	Puri; Atul	375	H04N	20040330	4	96%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: A quantizer estimator, comprising: a linear regression unit to generate a quantizer estimate from input values of prior quantizer selections and coding rates, first memory to store predetermined values of quantizer selections and coding rates, the table indexed by a complexity indicator signal, second memory to store quantizer selections and coding rates of previously coded P pictures, and a selector selectively coupling an input to the linear regression unit to the first memory when a picture type signal indicates an I picture and to the second memory when the picture type signal indicates a P picture.

2009/0103610	RATE CONTROL FOR VIDEO CODER EMPLOYING ADAPTIVE LINEAR REGRESSION BITS MODELING	APPLE INC.	PURI; Atul	375	H04N	20081223	4	96%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures

of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: (canceled)

7,149,251	Apparatus, and associated method, for forming a compressed motion vector field utilizing predictive motion coding	Nokia Corporation	Karczewicz; Marta | Lainema; Jani | Dobrin; Bogdan-Paul	375	H04B	20040213	0	100%	☐

Abstract: Apparatus, and an associated method, motion compensates coding of video sequences. Motion compensated prediction is utilized in the representation of motion vector fields. Reduced numbers of bits are required to represent the motion vector field while maintaining a low prediction error, thereby facilitating improved communication of, and recreation of, video frames forming a video sequence.
MainClaim: A method of decoding encoded information representative of a video sequence, said video sequence comprising a plurality of video frames, said decoding method comprising the steps of: receiving encoded information representative of a segment of a current frame of said video sequence; identifying a coding mode of the encoded information, the coding mode being one of at least a first coding mode and a second coding mode; and reconstructing the segment of the current frame of the video sequence; wherein the reconstructing step is performed using a first motion field model derived using motion compensated prediction with respect to a previously-encoded frame of the video sequence if the identified coding mode is the first coding mode; and wherein the reconstructing step is performed using a second motion field model based on a motion field model determined for an adjacent previously-encoded segment of the current frame if the identified coding mode is the second coding mode.

2010/0086063	QUALITY METRICS FOR CODED VIDEO USING JUST NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Haskell; Barin Geoffry | Shi; Xiaojin	375	H04N	20090331	8	94%	☐

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.
MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

2010/0110303	Look-Ahead System and Method for Pan and Zoom Detection in Video Sequences	APPLE INC.	Dumitras; Adriana | Haskell; Barin G.	348	H04N	20100111	5	94%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.
MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising:selecting a set of frames from a video sequence;determining a set of motion vectors for each frame in the set of frames;determining a motion angle for each motion vector;identifying at least two regions in each frame, wherein a first region includes motion vectors having a first orientation and the second region includes motion vectors having a second orientation;determining percentages of each frame covered by each of the at least two regions;determining a statistical measure of the motion vectors for at least one of the two regions using the look-ahead detector; andcomparing the percentages and statistical measure to threshold values to identify whether the set of frames includes at least one of a pan and a zoom.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	94%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer

decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

6,696,993	Variable length coding	Nokia Corporation	Karczewicz; Marta	341	H03M	20020322	0	100%	☐

Abstract: The invention relates to a method of variable length coding in which data symbols are arranged into a number of sets, each of which comprises at least a first data symbol. At least two sets of variable length codewords are provided for variable length coding the data symbols and the sets of data symbols are variable length coded in a coding sequence, starting from a first set and progressing to a last set of data symbols. For a given set of data symbols, other than the first set of data symbols in the coding sequence, a set of cumulative information measures is determined, each of which is representative of a total amount of information required to variable length code the first data symbols of all the sets of data symbols preceding the given set of data symbols in the coding sequence using a predetermined one of the at least two sets of variable length codewords. The set of cumulative information measures is examined to determine which of the at least two sets of variable length codewords provides the smallest cumulative information measure and a codeword is selected to variable length code the first data symbol of the given set of data symbols from the set of variable length codewords which provides the smallest cumulative information measure. A corresponding encoder, decoding method and decoder are also described.
MainClaim: A method of variable length coding data symbols, said data symbols being arranged in a number of sets of data symbols, each set of data symbols comprising at least a first data symbol, at least two sets of variable length codewords being provided for variable length coding said data symbols, said number of sets of data symbols being variable length coded in a coding sequence, from a first set of data symbols to a last set of data symbols, characterised in that the method comprises:

for a given set of data symbols in said coding sequence other than the first set of data symbols, determining for each one of said at least two sets of variable length codewords a total amount of information required to variable length code the first data symbols of all sets of data symbols preceding said given set of data symbols in said coding sequence by determining a set of cumulative information measures;

examining said set of cumulative information measures to determine which of said at least two set of variable length codewords provides the smallest cumulative information measure; and

selecting a codeword for variable length coding said first data symbol of said given set of data symbols from the set of variable length codewords which provides the smallest cumulative information measure.

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent | Guo; Haitao | Oslick; Mitchell	382	G06K	20040330	8	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding

chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

2008/0253461	METHOD AND SYSTEM FOR VIDEO ENCODING AND DECODING	APPLE INC.	LIN; Ken Kengkuan | CHOU; Peter Hungye | OSLICK; Mitchell Howard | WALLACE; Gregory Kent | AKRAMULLAH; Shahriar M.	375	H04B	20070413	5	97%	☐

Abstract: Methods and systems are provided for encoding and decoding a video stream. Each picture in a video stream can be divided into slices, each of which contains a contiguous row of macroblocks. All the blocks corresponding to a single video component within each slice can then be used as the basis for encoding the picture. By decomposing each picture into slices, the video stream can be efficiently converted for displays of varying size and/or quality. The encoded bitstream can include a slice table to allow direct access to each slice without reading the entire bitstream. Each slice can also be processed independently, allowing for parallelized encoding and/or decoding.
MainClaim: A method of encoding a video stream, comprising:organizing source image data into a plurality of slices, each slice including multiple macroblocks having the same macroblock row in a source image and each macroblock including multiple blocks;for a plurality of blocks within a slice, generating transform coefficients for each of the plurality of blocks, each transform coefficient calculated for a video component block position; andat each block position, run-length coding the transform coefficients across the plurality of blocks to form an encoded bitstream.

6,895,051	Video data encoder and decoder	Nokia Mobile Phones Limited	Nieweglowski; Jacek | Tûrker; Mustafa Ali | Kalevo; Ossi | Haavisto; Petri	375	H04B	20010606	0	100%	☐

Abstract: This invention relates to compression of prediction error in motion compensated video coding schemes. Prediction frame and motion vectors are used to extract useful information about the properties of the prediction error signal, e.g. its location, directionality, etc. This information does not need to be transmitted because the decoder of the proposed system includes means to extract this information. Information extracted by the encoder and decoder is used to adapt prediction error coding scheme which gives substantial bitrate reductions.
MainClaim: Decoder for decoding motion compensation encoded video data, comprising:

means (**34**) for storing a video frame (R);

means (**35**) for predicting a video data frame (P) based on said vodeo frame data frame (R) and on received motion vecotr data;

means (**32**) for decoding received prediction error data and obtaining a prediction error frame (E*); and

means (**33**) for calculating and outputting an updated video data frame (I*) based on said predicted video data frame (P) and said decoded prediction error frame (E*), and storing the updated video data frame (I*) in said storing means;

said means (**32**) for decoding said received prediction error data comprising:

determination means for performing at least one of the following operations: determination of areas of said prediction error frame (E) which are contained encoded in the received prediction error data and determination of at least one decoding scheme for each area contained encoded in the received prediction error data; and

area decoding means (**48**) for decoding said received prediction error data to obtain the prediction error frame in accordance with the at least one determination operation performed by said determination means;

wherein said determination means is adapted to analyse properties of said predicted video data frame (P), and to perform said at least one determination operation based on said analysis.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	97%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2010/0086063	QUALITY METRICS FOR CODED VIDEO USING JUST NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Haskell; Barin Geoffry | Shi; Xiaojin	375	H04N	20090331	8	96%	☐

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.
MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	96%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

7,532,808	Method for coding motion in a video sequence	Nokia Corporation	Lainema; Jani	386	H04N	20030314	0	100%	☐

Abstract: A method of motion-compensated video encoding that enables a video sequence with a global motion component to be encoded in an efficient manner. A video encoder is arranged to assign macroblocks to be coded to specific coding modes including a skip mode, which is used to indicate one of two possible types of macroblock motion: a) zero motion, or b) global or regional motion. As each macroblock is encoded, a previously encoded region surrounding the macroblock is examined and the characteristics of motion in that region determined. With the skip mode, the macroblock to be coded and a motion vector describing the global motion or regional motion is associated with the macroblock if the motion in the region is characteristic of global motion or regional motion. If the region exhibits an insignificant level of motion, a zero valued motion vector is associated with the macroblock.
MainClaim: A method of encoding a video sequence, the method comprising: assigning a skip coding mode to a first segment of a first frame of the sequence; assigning either a zero motion vector or a predicted non-zero motion vector for the skip coding mode for the first segment based at least in part on the motion information of a second segment neighboring the first segment; and forming a prediction for the first segment with respect to a reference frame based at least in part on the assigned motion vector for the skip coding mode, wherein the assigned motion vector is one of the zero motion vector and the predicted non-zero motion vector; and providing in an encoded bitstream an indication of the skip coding mode, wherein no further motion vector information for the first segment is coded in the encoded bitstream.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	98%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	98%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	97%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

6,782,053	Method and apparatus for transferring video frame in telecommunication system	Nokia Mobile Phones Ltd.	Lainema; Jani	375	H04N	20000811	0	100%	☐

Abstract: A method of coding video frames in a telecommunication system, comprising: forming a video frame of consecutive stationary frames, storing the frame reconstruction data of at least one frame as a reference frame and the motion data of earlier coded neighbouring blocks, defining by means of the motion data of one or more earlier coded neighbouring blocks the motion data of the block to be coded, which neighbouring block is formed by means of the stored reference frame, defining the frame reconstruction data of the frame to be coded, selecting for use the frame reconstruction data and motion data representing the block to be coded, which provide a pre-defined coding efficiency with a predefined picture quality.
MainClaim: A method of coding video frames in a telecommunication system, comprising

forming a video frame of consecutive stationary frames,

storing the frame reconstruction data of at least one frame as a reference frame and the motion data of earlier coded neighbouring blocks,

defining by means of the motion data of one or more earlier coded neighbouring blocks the motion data of the block to be coded, which neighbouring block is formed by means of the stored reference frame,

defining the frame reconstruction data of the frame to be coded,

selecting for use the frame reconstruction data and motion data representing the block to be coded, which provide a pre-defined coding efficiency with a predefined picture quality.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	96%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	95%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	95%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

7,295,713	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi | Vahteri; Joni Henrikki | Dobrin; Bogdan-Paul | Karczewicz; Marta	382	G06K	20050606	0	100%	☐

Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.
MainClaim: A method for encoding a digital image in a block-based manner, in which a spatial prediction for a block is performed to reduce amount of information to be transmitted, wherein the method comprises: determining a classification for at least two neighboring blocks of a block to be predicted according to the image contents of said neighboring blocks; selecting a sub-set of prediction methods from a set of available prediction methods on the basis of the classifications of said at least two neighboring blocks; defining an arrangement for the list of said sub-set of prediction methods in a rank order, said rank order determined on the basis of the classifications of said at least two neighboring blocks, wherein each prediction method in the said list has a unique rank with respect to each of the other prediction methods; selecting a prediction method for the block to be predicted from said sub-set of prediction methods; forming a spatial prediction for the block to be predicted using the selected prediction method; and providing a signal representative of rank of the selected prediction method.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	95%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

2010/0086063	QUALITY METRICS FOR CODED VIDEO USING JUST NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Haskell; Barin Geoffry | Shi; Xiaojin	375	H04N	20090331	8	95%	☐

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.
MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

2008/0253450	METHOD AND SYSTEM FOR VIDEO RATE CONTROL	APPLE INC.	Lin; Ken Kengkuan	375	H04B	20070413	3	94%	☐

Abstract: A method and system are provided for encoding a picture. The method includes encoding the picture into a first encoded picture using a first universal quantizer. If a size of the first encoded picture is greater than a maximum picture size, the method includes encoding the picture into a second encoded picture using small quantizers for smooth regions of the picture and large quantizers for complex regions. If a size of the second encoded picture is still greater than a maximum picture size, the method includes encoding the picture into a third encoded picture with revised quantizers for complex regions and dropping high frequency coefficients if necessary to ensure the encoded picture size never exceeds the maximum size.
MainClaim: A method of coding a picture within a video stream with a limited number of coding passes, comprising:on each pass, coding at least one slice associated with the picture, image data of the slice being subject to coefficient

transform and to quantization by a quantization parameter, whereinon a first pass, quantizing all slices with a first value of the quantization parameter that is common to all slices of the picture,on a second pass, which is reached if a size of a coded picture data obtained from the first pass exceeds a predetermined limit, encoding a first set of selected slices with a second value of the quantization parameter,on a third pass, which is reached if a size of coded picture data obtained from the second pass exceeds the predetermined limit, encoding a second set of selected slices with a third value of the quantization parameter, andwhen a pass generates coded picture data that satisfies the predetermined limit, outputting the coded picture data to a channel.

6,735,249	Apparatus, and associated method, for forming a compressed motion vector field utilizing predictive motion coding	Nokia Corporation	Karczewicz; Marta | Lainema; Jani | Dobrin; Bogdan-Paul	375	H04B	19990811	0	100%	☐

Abstract: Apparatus, and an associated method, motion compensates coding of video sequences. Motion compensated prediction is utilized in the representation of motion vector fields. Reduced numbers of bits are required to represent the motion vector field while maintaining a low prediction error, thereby facilitating improved communication of, and recreation of, video frames forming a video sequence.

MainClaim: In a method of operating on a video sequence, said video sequence being formed of at least a current video frame and a reference video frame, the current video frame comprising at least one first neighboring segment and a second neighboring segment, an improvement of a method for motion compensated prediction of the current video frame comprising the steps of:

retrieving a previously stored first motion field model, said first motion field model being a model of a first motion vector field describing the displacements of pixels in the first neighboring segment with respect to pixels in the reference video frame;

determining a second motion vector field describing displacements of pixels in the second neighboring segment of the current video frame with respect to pixels in the reference video frame;

modeling said second motion vector field using a motion model to form a second motion field model;

approximating said second motion field model on the basis of said first motion field model to form a prediction field model;

comparing said second motion field model with said prediction field model and forming a refinement field model, said refinement field model representing the difference between said second motion field model and said prediction field model;

constructing an alternative:model representation of said second motion field model by making a summation of said prediction field model and said refinement field model;

calculating a first cost function wherein said first cost function includes a measure of a first image distortion incurred and a measure of a first amount of data required when using said second motion field model;

calculating a second cost function wherein said second cost function includes a measure of a second image distortion incurred and a measure of a second amount of data required when using said alternative model representation of said second motion field;

comparing said first and second cost functions and determining which of said first and second cost functions has a smaller absolute value; and

choosing that alternate one of said second motion field model and said alternative model representation of said second motion vector field associated with said smaller absolute value to indicate a chosen motion field model and storing said chosen motion field model.

2010/0110303	Look-Ahead System and Method for Pan and Zoom Detection in Video Sequences	APPLE INC.	Dumitras; Adriana | Haskell; Barin G.	348	H04N	20100111	5	94%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.

MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising:selecting a set of frames from a video sequence;determining a set of motion vectors for each frame in the set of frames;determining a motion angle for each motion vector;identifying at least two regions in each frame, wherein a first region includes motion vectors having a first orientation and the second region includes motion vectors having a second orientation;determining percentages of each frame covered by each of the at least two regions;determining a statistical measure of the motion vectors for at least one of the two regions using the look-ahead detector; andcomparing the

percentages and statistical measure to threshold values to identify whether the set of frames includes at least one of a pan and a zoom.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	94%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

7,646,437	Look-ahead system and method for pan and zoom detection in video sequences	Apple Inc.	Dumitras; Adriana | Haskell; Barin G	348	H04N	20030903	3	94%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.
MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising: selecting a set of frames from a video sequence from an image database; determining a set of motion vectors for each frame in the set of frames using a motion analysis block executed by a processor; determining a motion angle for each motion vector using the motion analysis block; identifying at least two largest regions in each frame using a look-ahead detector executed by the processor, wherein the first largest region includes motion vectors with substantially similar motion angles and occupies a largest number of pixels in a frame and the second largest region includes motion vectors with substantially similar motion angles and occupies a second largest number of pixels in a frame; determining percentages of each frame covered by each of the at least two largest regions using the look-ahead detector; determining a statistical measure of the motion angles for at least one of the two largest regions using the look-ahead detector; and comparing the percentages and statistical measure to threshold values to identify at least one of a pan and a zoom in the video sequence using the look-ahead detector.

6,920,175	Video coding architecture and methods for using same	Nokia Corporation	Karczewicz; Marta | Kurceren; Ragip	375	H04N	20010809	0	100%	☐

Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method in accordance with an embodiment of the invention allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing identical reconstruction of the frame using different reference frames. Methods in accordance with embodiments of the invention using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.
MainClaim: A decoder for decoding encoded data wherein identical frames may be obtained even when they are predicted using different reference frames, said decoder comprising: means for forming a prediction block P of a current block of data I using a plurality of motion vectors and a reference frame; means for calculating a plurality of transform coefficients c_{pred} for said prediction block; means for calculating a plurality of quantized reconstruction coefficients I_{rec} for said current block of data, wherein $I_{rec}=(c_{pred}\times A(QP\mathbf{1})+I_{err}\times F(QP\mathbf{1},QP\mathbf{2})+f\times 2^{20})//2^{20}$ where $F(QP\mathbf{1},QP\mathbf{2})=(2^{20}\times A(QP\mathbf{1})+0.5\times A(QP\mathbf{2}))//A(QP\mathbf{2})$; means for dequantizing said plurality of quantized reconstruction image coefficients, creating a plurality of dequantized coefficients d_{rec}; and means for inverse transforming said plurality of dequantized coefficients.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	97%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	97%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	97%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

7,567,719	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi | Vahteri; Joni | Dobrin; Bogdan-Paul | Karczewicz; Marta	382	G06K	20071009	0	100%	☐

Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighboring block (L, U) of said block (C) to be predicted according to the contents of the neighboring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.
MainClaim: A method for encoding a digital image in a block-based manner into an encoded bitstream, the method comprising: performing by an encoder a prediction for a block to be coded with respect to a reference block, wherein displacement between the block to be coded and the reference block is represented by a horizontal displacement and a vertical displacement; defining by said encoder an ordered list of each possible horizontal and vertical displacements in a

rank order; and providing by said encoder a signal, in the encoded bitsream, representative of the rank of the horizontal displacement and the vertical displacement in the ordered list.

2010/0086063	QUALITY METRICS FOR CODED VIDEO USING JUST NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Haskell; Barin Geoffry | Shi; Xiaojin	375	H04N	20090331	8	94%	☐

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.
MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

2009/0168898	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	375	H04N	20090306	5	93%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: (canceled)

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	93%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

7,599,565	Method and device for transform-domain video editing	Nokia Corporation	Kurceren; Ragip | Chebil; Fehmi | Islam; Asad	382	G06K	20040310	0	100%	☐

Abstract: A method and device for editing video data to achieve a video effect in a video sequence. From an encoder, transform coefficients of part of the video sequence are obtained. The transform coefficients are mixed with other transform coefficients in a combining module. The output of the combining module is quantized and further processed to provide an edited video bitstream. In the combining module, transform coefficients are multiplied with weighting parameters to achieve different video effects. Furthermore, logo data from a memory can be transformed into further transform coefficients for mixing in order to achieve a logo insertion effect. Moreover, prediction error and motion compensation information obtained from video data can be used to provide a reference frame, and the transform data from the reference frame can be used for mixing to achieve a blending effect.
MainClaim: A method comprising: acquiring in a video decoder video data indicative of a plurality of first transform coefficients from a first bitstream; acquiring in the video decoder video data indicative of a plurality of second transform coefficients different from the first transform coefficients, obtaining first predicted video data based on motion

information from a second bitstream and a previously constructed part of the second bitstream; performing transform operation on the first predicted video data for obtaining a plurality of third transform coefficients; and combining the first transform coefficients, the second transform coefficients and the third transform coefficients for achieving a video effect.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	97%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	97%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent | Guo; Haitao | Oslick; Mitchell	382	G06K	20040330	8	97%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

6,795,584	Context-based adaptive variable length coding for adaptive block transforms	Nokia Corporation	Karczewicz; Marta | Ridge; Justin	382	G06K	20021003	0	100%	☐

Abstract: A method and system for coding an image using context-based adaptive VLC where transform coefficients are partitioned into blocks having a block dimension of 4n×4m (with n, m being positive integer equal to or greater than 1). Each block is scanned in a zigzag manner to produce an ordered vector of coefficients having a length of 16n×m. The ordered vector is sub-sampled in an interleaved manner to produce n×m sub-sampled sequences of transform coefficients prior to encoding the transform coefficients using an entropy encoder.
MainClaim: A method of image coding using data indicative of an image, characterized by

forming at least a block of transform coefficients from the image data, by

scanning the block of transform coefficients for providing a sequence of transform coefficients, by

sub-sampling the transform coefficients in the sequence in an interleaved manner for providing a plurality of sub-sampled sequences of transform coefficients, and by

coding the sub-sampled sequences of transform coefficients using an entropy encoder.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	97%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

7,379,956	Encoding and decoding data arrays	Apple Inc.	Kumar; Roger | Handley; Maynard | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	708	G06F	20030430	5	96%	☐

Abstract: Some embodiments of the invention provide a method of performing a Discrete Cosine Transform ("DCT") encoding or decoding coefficients of a data array by (1) multiplying the coefficients by a scalar value before the encoding or decoding, and then (2) dividing the encoded or decoded coefficients by the scalar value. When used in conjunction with fixed-point arithmetic, this method increases the precision of the encoded and decoded results. In addition, some embodiments provide a method of performing a two-dimensional (2D) Inverse Discrete Cosine Transform ("iDCT"). This method splits a pre-multiplication operation of the iDCT into two or more separate stages. When used in conjunction with fixed-point arithmetic, this splitting increases the precision of the decoded results of the iDCT.
MainClaim: A method comprising: decoding an encoded video stream that has been encoded according to a two-dimensional (2D) transform encoding operation that is separable into two one-dimensional (1D) transform operations, the encoded video stream comprising a plurality of encoded values for a plurality of encoded video images, said decoding comprising: parsing encoded values out of the data stream and creating a two-dimensional data array that stores the encoded values in a particular scan order, wherein the values in the created data array are encoded in both dimensions of the array; multiplying each value in the data array by a scalar value, wherein the data array is an array of data values from a video image; performing a first 1D inverse transform to the data array resulting from the multiplying; transposing the data array resulting from the first 1D inverse transform; performing a second 1D inverse transform to the data array resulting from the transposing; and dividing by the scalar value each value in the data array resulting from the second 1D inverse transform to produce a data array comprising decoded values, the data array comprising decoded values being produced without a second transposing step.

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent | Guo; Haitao | Oslick; Mitchell	382	G06K	20040330	8	96%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels,

for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

6,950,469	Method for sub-pixel value interpolation	Nokia Corporation	Karczewicz; Marta | Hallapuro; Antti Olli	375	H04N	20010917	0	100%	☐

Abstract: A method of interpolation in video coding in which an image comprising pixels arranged in rows and columns and represented by values having a specified dynamic range, the pixels in the rows residing at unit horizontal locations and the pixels in the columns residing at unit vertical locations, is interpolated to generate values for sub-pixels at fractional horizontal and vertical locations, the method comprising:

- a) when values for sub-pixels at half unit horizontal and unit vertical locations, and unit horizontal and half unit vertical locations are required, interpolating such values directly using weighted sums of pixels residing at unit horizontal and unit vertical locations;
- b) when values for sub-pixels at half unit horizontal and half unit vertical locations are required, interpolating such values directly using a weighted sum of values for sub-pixels residing at half unit horizontal and unit vertical locations calculated according to step (a); and
- c) when values for sub-pixels at quarter unit horizontal and quarter unit vertical locations are required, interpolating such values by taking the average of at least one pair of a first pair of values of a sub-pixel located at a half unit horizontal and unit vertical location, and a sub-pixel located at a unit horizontal and half unit vertical location and a second pair of values of a pixel located at a unit horizontal and unit vertical location, and a sub-pixel located at a half unit horizontal and half unit vertical location.

MainClaim: A method of interpolation in video coding in which an image comprising pixels arranged in rows and columns and represented by values having a specified dynamic range, the pixels in the rows residing at unit horizontal locations and the pixels in the columns residing at unit vertical locations, is interpolated to generate values for sub-pixels at fractional horizontal and vertical locations, the fractional horizontal and vertical locations being defined according to $½^{x}$, where x is a positive integer having a maximum value N, the method comprising:

a) when values for sub-pixels at $½^{N-1}$ unit horizontal and unit vertical locations, and unit horizontal and $½^{N-1}$ unit vertical locations are required, interpolating such values directly using weighted sums of pixels residing at unit horizontal and unit vertical locations;

b) when values for sub-pixels at $½^{N-1}$ unit horizontal and $½^{N-1}$ unit vertical locations are required, interpolating such values directly using a choice of a first weighted sum of values for sub-pixels residing at $½^{N-1}$ unit horizontal and unit vertical locations and a second weighted sum of values for sub-pixels residing at unit horizontal and $½^{N-1}$ unit vertical locations, the first and second weighted sums of values being calculated according to step (a); and

c) when a value for a sub-pixel situated at a $½^{N}$ unit horizontal and $½^{N}$ unit vertical location is required, interpolating such a value by taking a weighted average of the value of a first sub-pixel or pixel situated at a $½^{N-m}$ unit horizontal and $½^{N-n}$ unit vertical location and the value of a second sub-pixel or pixel located at a $½^{N-p}$ unit horizontal and $½^{N-q}$ unit vertical location, variables m, n, p and q taking integer values in the range 1 to N such that the first and second sub-pixels or pixels are located diagonally with respect to the sub-pixel at $½^{N}$ unit horizontal and $½^{N}$ vertical location.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	94%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.

MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference,

andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	94%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	94%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

7,263,125	Method and device for indicating quantizer parameters in a video coding system	Nokia Corporation	Lainema; Jani	375	H04N	20030423	0	100%	☐

Abstract: A method and device for coding of digital video sequence, wherein an indication of quantization parameter (QP) is provided in the encoded bit-stream for decoding purposes. The QP related information is indicated by introducing a sequence level quantization parameter value SQP. More specifically, instead of coding the absolute values of picture/slice QPs, an indication of the difference ΔQP between the sequence level quantization parameter SQP and the picture/slice QP is provided. This eliminates the need to transmit a full QP for every picture/slice, and enables a statistically smaller difference value to be transmitted, thus providing a reduction in transmission bit-rate. The difference value is subsequently used in a corresponding decoder to reconstruct the picture/slice QP.
MainClaim: A method of decoding an encoded digital video sequence for use in a video decoding application to produce a decoded digital video sequence, the digital video sequence comprising a number of frames, each frame of said sequence comprising an array of pixels divided into a plurality of blocks, each block comprising a certain number of said pixels, frames of the digital video sequence encoded by: applying motion compensated prediction to blocks of pixels for producing corresponding blocks of prediction error values; applying a transform coding technique to said blocks of prediction error valves to produce sets of transform coefficient values representative of said blocks of prediction error values; and applying a level of quantization to said sets of transform coefficient values to yield sets of quantized transform coefficient values representative of said blocks of prediction error values, wherein an indication of said level of quantization is provided in the encoded bit-stream including the encoded digital video sequence, said decoding method comprising: selecting a default level of inverse quantization for use in decoding of the encoded digital video sequence to inverse quantize the sets of quantized transform coefficient values, said default level selected based on the indication of said level of quantization provided in the encoded bit-stream.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	98%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock.

Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	97%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	97%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

7,289,674	Spatial prediction based intra coding	Nokia Corporation	Karczewicz; Marta	382	G06K	20030610	0	100%	☐

Abstract: A method and device for coding a digital image using intra-mode block prediction, wherein a list of prediction modes for each combination of prediction modes of the neighboring blocks is obtained. The modes assigned to each combination of prediction modes may be divided into two groups. The first group includes n (where n is smaller than the overall number of available modes) most probable prediction modes and the second group includes the remaining modes. The modes in the first group are ordered according to their probability. This order may be specified as a list of modes ordered from most probable to the least probable mode. The modes belonging to the second group may be ordered in some predetermined manner, which may be specified depending on the information already available to the decoder.
MainClaim: A method of coding into a bitstream image information comprising a plurality of image blocks using a plurality of spatial prediction modes for intra-mode block prediction, wherein the spatial prediction mode of a current block is determined based on a plurality of derived prediction modes, which are derived based on the spatial prediction modes of a plurality of neighboring blocks of the current block, said method comprising: grouping said plurality of derived prediction modes into a first group and a second group, the first group having a first number of first prediction modes and the second group having a second number of second prediction modes, wherein the first number is smaller than the number of the derived prediction modes, and wherein the first prediction modes have a higher probability of occurrence than the second prediction modes, and coding into the bitstream information indicative of whether the spatial prediction mode of the current block belongs to the first group or the second group.

	Video coding system								

7,519,229	providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent | Guo; Haitao | Oslick; Mitchell	382	G06K	20040330	8	96%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	96%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

2009/0168898	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	375	H04N	20090306	5	96%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: (canceled)

7,280,599	Method for sub-pixel value interpolation	Nokia Corporation	Karczewicz; Marta | Hallapuro; Antti Olli	375	H04B	20050325	0	100%	☐

Abstract: A method of interpolation in video coding in which an image comprising pixels arranged in rows and columns and represented by values having a specified dynamic range, the pixels in the rows residing at unit horizontal locations and the pixels in the columns residing at unit vertical locations, is interpolated to generate values for sub-pixels at fractional horizontal and vertical locations, the method comprising: a) when values for sub-pixels at half unit horizontal and unit vertical locations, and unit horizontal and half unit vertical locations are required, interpolating such values directly using weighted sums of pixels residing at unit horizontal and unit vertical locations; b) when values for sub-pixels at half unit horizontal and half unit vertical locations are required, interpolating such values directly using a weighted sum of values for sub-pixels residing at half unit horizontal and unit vertical locations calculated according to step (a); and c) when values for sub-pixels at quarter unit horizontal and quarter unit vertical locations are required, interpolating such values by taking the average of at least one pair of a first pair of values of a sub-pixel located at a

half unit horizontal and unit vertical location, and a sub-pixel located at a unit horizontal and half unit vertical location and a second pair of values of a pixel located at a unit horizontal and unit vertical location, and a sub-pixel located at a half unit horizontal and half unit vertical location.
MainClaim: A method for sub-pixel value interpolation to determine values for sub-pixels situated within a rectangular bounded region defined by four corner pixels with no intermediate pixels between the corners, the pixels and sub-pixels being arranged in rows and columns, the pixel and sub-pixel locations being representable mathematically within the rectangular bounded region using the co-ordinate notation $K/2^N$, $L/2^N$, K and L being positive integers having respective values between zero and 2^N, N being a positive integer greater than one and representing a particular degree of sub-pixel value interpolation, the method comprising: interpolating a sub-pixel value for a sub-pixel having co-ordinates with odd values of both K and L, according to a predetermined choice of a weighted average of the value of a nearest-neighbouring pixel and the value of the sub-pixel situated at co-ordinates 1/2, 1/2, and a weighted average of the values of a pair of diagonally-opposed sub-pixels having co-ordinates with even values of both K and L, including zero, situated within a quadrant of the rectangular bounded region defined by corner pixels having co-ordinates 1/2, 1/2 and the nearest neighbouring pixel; interpolating sub-pixel values for sub-pixels having co-ordinates with K equal to an even value and L equal zero and sub-pixels having co-ordinates with K equal to zero and L equal to an even value, used in the interpolation of the sub-pixels having co-ordinates with odd values of both K and L, using weighted sums of the values of pixels located in rows and columns respectively; and interpolating sub-pixel values for sub-pixels having co-ordinates with even values of both K and L, used in the interpolation of sub-pixel values for the sub-pixels having co-ordinates with odd values of both K and L, using a predetermined choice of either a weighted sum of the values of sub-pixels having co-ordinates with K equal to an even value and L equal to zero and the values of sub-pixels having corresponding co-ordinates in immediately adjacent rectangular bounded regions, or a weighted sum of the values of sub-pixels having co-ordinates with K equal to zero and L equal to an even value and the values of sub-pixels having corresponding co-ordinates in immediately adjacent bounded rectangular regions.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	94%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	94%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	94%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the

default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

7,349,473	Method and system for selecting interpolation filter type in video coding	Nokia Corporation	Hallapuro; Antti | Lainema; Jani | Karczewicz; Martz	375	H04B	20030709	0	100%	☐

Abstract: A method and system for coding a video sequence based on motion compensated prediction, wherein an interpolation filter is used to generate predicted pixel values for picture blocks in the video sequence. The interpolation filter for use in conjunction with a multi-picture type is shorter or having fewer coefficients than the interpolation filter for use in conjunction with a single-picture type. As such, the complexity of the interpolation filter for the multi-picture type can be reduced. Furthermore, the interpolation filter may be changed based on the characteristics of the block, the size and/or the shape of the block.
MainClaim: A method of motion compensated prediction, said method comprising: selecting an interpolation filter to be used during motion compensated prediction of a picture block in dependence on a type of motion compensated prediction used for the picture block, wherein the type of motion compensation prediction is either a single-picture type, in which a prediction for the picture block is formed using a single reference picture, or a multi-picture prediction type, in which a prediction for the picture block is formed using more than one reference picture, and wherein the interpolation filter for the multi-picture prediction type has fewer coefficients than the interpolation filter for the single-picture prediction type.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	97%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	96%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	95%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are

provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.

MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

6,765,963	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta | Kurceren; Ragip	375	H04N	20010618	0	100%	☐

Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.

MainClaim: A decoder for decoding encoded data wherein identical frames are obtained even when they are predicted using different reference frames, said decoder comprising:

means for forming a prediction P of a current block of data I_{err} using a plurality of motion vectors and a reference frame;

means for calculating a plurality of transform coefficients c_{pred} for said current block of data;

means for calculating a plurality of quantized reconstruction coefficients I_{rec} for said current block of data, wherein

$I_{rec}=(c_{pred}\times A(QP1)+I_{err}\times F(QP1, QP2)+0.5\times 2^{20})//2^{20}$

where $F(QP1, QP2)=(2^{20}\times A(QP1)+0.5\times A(QP2)//A(QP2)$;

means for dequantizing said plurality of quantized reconstruction image coefficients, creating a plurality of dequantized coefficients d_{rec}; and

means for inverse transforming said plurality of dequantized coefficients.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	98%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.

MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

	METHOD AND APPARATUS FOR VARIABLE								

2009/0022224	ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	7	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is preformed by simple shifts.
MainClaim: (canceled)

7,194,035	Method and apparatus for improved coding mode selection	Apple Computer, Inc.	Dumitras; Adriana | Haskell; Barin Geoffry | Puri; Atul	375	H04N	20030707	1	97%	☐

Abstract: Some embodiments provide a method of performing mode selection in a video compression and encoding system. The method encodes with several encoding modes from a set of encoding modes. The method computes a distortion value for each encoding mode from the several encoding modes. The method computes a bit rate value for each encoding mode from the several encoding modes. The method computes a Lagrangian value for each encoding mode from the several encoding modes, using the distortion value, the bit rate value, and a Lagrangian multiplier. The method selects an encoding mode based on the Lagrangian values.In some embodiments, computing the distortion value includes using a function that reduces the effects of outliers. In some embodiments, the Lagrangian multiplier is a slow varying Lagrangian multiplier that varies at a slower rate than a varying reference Lagrangian multiplier for a reference encoding mode. In yet some embodiments, the method clusters the Lagrangian values.
MainClaim: A method of performing mode selection in a video compression and encoding system, said method comprising: encoding with a plurality of encoding modes from a set of encoding modes; computing a distortion value for each encoding mode from the plurality of encoding modes; computing a bit rate value for each encoding mode from the plurality of encoding modes; computing a Lagrangian value for each encoding mode from the plurality of encoding modes using said distortion value, said bit rate value, and a Lagrangian multiplier; clustering said Lagrangian values; and selecting an encoding mode based on said Lagrangian values by selecting a mode 0 encoding method if said mode 0 encoding method is in a specific cluster.

7,706,447	Switching between bit-streams in video transmission	Nokia Corporation	Karczewicz; Marta | Kurceren; Ragip	375	H04N	20020103	0	100%	☐
2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	97%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	97%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a

border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	97%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

6,760,481	Method and system for processing image data	Nokia Mobile Phones Ltd.	Chebil; Fehmi | Willner; Kai | Lainema; Jani	382	G06K	20000609	0	100%	☐

Abstract: The invention relates generally to the processing of image data. Especially the invention applies to the coding and decoding of still images for compression and transfer in a mobile telecommunications system. The objects of the invention are fulfilled by providing an image processing procedure, which is based on wavelet transform (202), successive approximation quantization (204, 208) and guadtree coding (206). The quadtree coding preferably comprises the step of coding the significance with two symbols. The solution does not require large data processing or memory capacity. Still it offers a high image quality for a given bit rate compared to the prior art solutions. The solution according to the invention also satisfies the requirements of progressivity in quality and resolution.
MainClaim: A method for processing image data, comprising:

a) transforming the image data into sub-bands, the transformed image data for each sub-band comprising a set of transform coefficients, each of said set of transform coefficients having a sign and a value;

b) quantizing the transformed image data using successive approximation quantization to produce a bit-stream, the successive approximation being embedded in the coding process and comprising quantisation at a number of successive quantisation levels, each quantisation level having an associated quantisation threshold; and

c) coding the bit-stream with significance information to produce a coded bit-stream using a quadtree based method and including sign and refinement information in the coded bit-stream,

wherein for a given sub-band at any one of said number of successive approximation quantisation levels, the method comprises:

d) determining whether a sub-band contains at least one transform coefficient that is significant with respect to the quantisation threshold defined for said quantisation level;

e) if said sub-band contains at least one transform coefficient that is significant with respect to said quantisation threshold, indicating in the coded bit-stream that the sub-band contains at least one significant transform coefficient value using a first significance value;

f) if said sub-band does not contain any transform coefficient that is significant with respect to said quantisation threshold, indicating in the coded bit-stream that the sub-band does not contain any significant transform coefficient value using a second significance value;

g) if said sub-band contains at least one transform coefficient that is significant with respect to said quantisation threshold, dividing said sub-band into four quadrants and repeating steps d) to g) for each of the quadrants until no

further division is possible or until a desired level of division is reached.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	93%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	93%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

6,618,509	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20010409	4	93%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block of pixels of a digitized video image using a selectable one of a plurality of coding functions, the method comprising:

establishing adjustable selection criteria for selecting a coding function;

measuring a predetermined characteristic of the block to obtain a characteristic value;

selecting a coding function based on said adjustable selection criteria and said characteristic value;

coding the block according to said coding function to obtain a coded block;

performing a quality measurement of said coded block;

adjusting said adjustable selection criteria for selecting a coding function, utilizing said quality measurement such that

quality measurements of subsequent blocks are improved; and

establishing historical records of quality values and characteristic values and associated coding functions and quantization values.

7,388,996	Method for filtering digital images, and a filtering device	Nokia Corporation	Lainema; Jani | Dobrin; Bogdan-Paul | Karczewicz; Marta	382	G06K	20010119	0	100%	☐

Abstract: The invention relates to a method for reducing visual artefacts in a digital image, which is coded by blocks (B1, B2, B3, B4) and then decoded. In the method filtering is performed to reduce visual artefacts due to a boundary (R12, R13, R24, R34) between a current block and an adjacent block (B1, B2, B3, B4). The filtering is performed after the current block (B1, B2, B3, B4) is decoded and there is a boundary available for filtering between the current block and a previously decoded block.
MainClaim: A method of encoding a digital image comprising a plurality of image blocks, the method comprising: decoding a first encoded image block; performing a filtering operation across a block boundary between the first decoded image block and a previously decoded image block adjacent to the first decoded image block such that the pixel value of at least one decoded pixel in the first decoded image block is modified by the filtering operation; and performing a prediction for at least one pixel value of a second block, the second block adjacent to the first decoded image block, wherein the prediction is performed based on the modified pixel value of the first decoded image block by the filtering operation, wherein filtering is performed due to more than one boundary between the first decoded image block and previously decoded image blocks in a sequential boundary scanning order that is based on a scanning order used in the encoding process.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	97%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	96%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	95%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform

deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta | Kurceren; Ragip	375	H04N	20040616	0	100%	☐

Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions.The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.
MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

2009/0022224	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	7	98%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is preformed by simple shifts.
MainClaim: (canceled)

2009/0022225	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	5	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-		Haskell; Barin						

2007/0286282	PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

7,302,001	Random access points in video encoding	Nokia Corporation	Wang; Ye-Kui | Hannuksela; Miska	375	H04N	20030428	0	100%	☐

Abstract: In a method of encoding/decoding a video sequence, which is composed of video frames, at least one video frame is divided into a set of coding blocks, and at least one of the coding blocks is encoded by intra-coding. Then a first reliable region that comprises at least one intra-coded coding block is determined, and the first reliable region in the video sequence is encoded such that creation of an information dependency between the first reliable region and coding blocks outside the first reliable region is prevented.
MainClaim: A method of encoding a video sequence, the video sequence being composed of video frames, the method comprising dividing at least one video frame into a set of coding blocks, encoding at least one of said coding blocks by intra-coding, determining a first reliable region that comprises at least one intra-coded coding block, and encoding said first reliable region in said video sequence such that creation of an information dependency between said first reliable region and coding blocks outside said first reliable region is prevented by turning off loop filtering at the borders of said reliable region.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	97%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

2007/0116126	Multipass video encoding and rate control using subsampling of frames	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Wu; Hsi-Jung | Tong; Xin | Pun; Thomas	375	H04N	20060321	4	96%	☐

Abstract: An encoder includes an encoder engine, a storage device and a controller to implement an iterative coding process. The encoder engine compresses a selected portion of a data sequence. The storage device stores the compressed portion of the data sequence after each iteration. The controller selects the portion of the data sequence to compress for each iteration. The controller gathers statistics from the compressed portion of the data sequence. The gathered statistics include statistics generated by the selected frames and statistics extrapolated from the selected frames for the non-selected frames. The controller adjusts coding parameters of the encoder engine on each iteration until the gathered statistics meet a specified performance requirement.
MainClaim: A method of coding a video sequence according to an iterative coding process, comprising: subsampling frames from the video sequence on a first iteration and any intermediate iterations of the coding process; coding the subsampled frames according to adjustable coding parameters; generating statistics for the video sequence based on statistics generated by the coding for frames included therein and based on extrapolated statistics for frames excluded from the coding; if the statistics of the video sequence do not meet a specified requirement, modifying the adjustable coding parameters for a next iteration of the coding process; and coding the non-subsampled frames on a last iteration

of the coding process to produce a complete coded video sequence.

2009/0022224	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	7	96%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is preformed by simple shifts.
MainClaim: (canceled)

6,118,903	Image compression method and apparatus which satisfies a predefined bit budget	Nokia Mobile Phones, Ltd.	Liu; Qin	382	G06K	19980715	0	100%	☐

Abstract: A DCT based lossy compression method for compressing a digitized image composed of a matrix of image samples to provide a compressed image which satisfies a predefined bit budget. The digitized image is first sub-divided into blocks (e.g. of size 8×8 pixels). A discrete cosine transform (DCT) comprising a set of DCT coefficients is then derived for each block. A quantization table is selected from a set of quantization tables and, using the selected table, the coefficients of each DCT are quantized. A zero-value index, corresponding to the average number of zero value quantized DCT coefficients per DCT, is determined. A predicted zero-value index is calculated using said predefined bit budget and a quantization table selected from said set of tables using the determined index and the predicted index. Using that selected table, the unquantized coefficients of the DCTs are re-quantized and the requantized coefficients compressed using run-length encoding and Huffman encoding.
MainClaim: A method of compressing a digitised image composed of a matrix of image samples to provide a compressed image which satisfies a predefined bit budget, the method comprising the steps of:

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	96%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

7,379,956	Encoding and decoding data arrays	Apple Inc.	Kumar; Roger | Handley; Maynard | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	708	G06F	20030430	5	95%	☐

Abstract: Some embodiments of the invention provide a method of performing a Discrete Cosine Transform ("DCT") encoding or decoding coefficients of a data array by (1) multiplying the coefficients by a scalar value before the encoding or decoding, and then (2) dividing the encoded or decoded coefficients by the scalar value. When used in conjunction with fixed-point arithmetic, this method increases the precision of the encoded and decoded results. In addition, some embodiments provide a method of performing a two-dimensional (2D) Inverse Discrete Cosine Transform ("iDCT"). This method splits a pre-multiplication operation of the iDCT into two or more separate stages. When used in conjunction with fixed-point arithmetic, this splitting increases the precision of the decoded results of the iDCT.
MainClaim: A method comprising: decoding an encoded video stream that has been encoded according to a two-dimensional (2D) transform encoding operation that is separable into two one-dimensional (1D) transform operations,

the encoded video stream comprising a plurality of encoded values for a plurality of encoded video images, said decoding comprising: parsing encoded values out of the data stream and creating a two-dimensional data array that stores the encoded values in a particular scan order, wherein the values in the created data array are encoded in both dimensions of the array; multiplying each value in the data array by a scalar value, wherein the data array is an array of data values from a video image; performing a first 1D inverse transform to the data array resulting from the multiplying; transposing the data array resulting from the first 1D inverse transform; performing a second 1D inverse transform to the data array resulting from the transposing; and dividing by the scalar value each value in the data array resulting from the second 1D inverse transform to produce a data array comprising decoded values, the data array comprising decoded values being produced without a second transposing step.

6,618,509	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20010409	4	95%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block of pixels of a digitized video image using a selectable one of a plurality of coding functions, the method comprising:

establishing adjustable selection criteria for selecting a coding function;

measuring a predetermined characteristic of the block to obtain a characteristic value;

selecting a coding function based on said adjustable selection criteria and said characteristic value;

coding the block according to said coding function to obtain a coded block;

performing a quality measurement of said coded block;

adjusting said adjustable selection criteria for selecting a coding function, utilizing said quality measurement such that quality measurements of subsequent blocks are improved; and

establishing historical records of quality values and characteristic values and associated coding functions and quantization values.

6,993,199	Method and system for improving coding efficiency in image codecs	Nokia Mobile Phones Ltd.	Chebil; Fehmi	382	G06K	20010918	0	100%	☐

Abstract: A method and system for encoding an image for providing encoded data for transmission or storage. After the image is decomposed by a transform into sub-bands containing blocks or samples of transformed image data organized in a number of bit-planes, it is adjusted to reduce the number of bit-planes prior to being encoded by a bit-plane coder into encoded data. The reduction of the bit-planes is based on the compression factor of the encoding process, the transmission target bit-rate, the type of sub-band and the resolution level of the transformed image data.
MainClaim: A method of encoding an image at a compression factor for providing encoded data for transmission or storage, wherein the image is decomposed by a transform into sub-bands of one or more resolution levels, each sub-band containing units of transformed image data organized in a first number of bit-planes, said method comprising the steps of:

assigning to the sub-bands a plurality of weighting indices indicative of the compression factor and the resolution level; adjusting, for each unit, the transformed image data according to at least one of the weighting indices for providing adjusted transformed image data having a second number of bit-planes smaller than the first number; and

encoding the adjusted transformed image data for providing the encoding data.

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent | Guo; Haitao | Oslick; Mitchell	382	G06K	20040330	8	94%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when

decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	94%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	94%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

6,744,924	Error concealment in a video signal	Nokia Mobile Phones Limited	Hannuksela; Miska | Hourunranta; Ari Johannes	382	G06K	19991102	0	100%	☐

Abstract: Apparatus and method for concealing an error in a frame of a video sequence. The video sequence includes a plurality of frames and being encoded as at least two independently-coded signals, each of which represents a sub-set of frames of the video sequence. The method includes receiving said at least two signals, identifying an error in a frame of the video sequence, and concealing the error by predicting corresponding data using at least one frame which is encoded in a signal 10b other than that in which the error is identified.
MainClaim: A method of concealing an error in a frame of a video sequence, including a sequence of frames the method comprising:

encoding the sequence of frames using a VRC method to divide the sequence of frames into at least two independently-encoded signal threads in such a way that the frames are assigned to the threads in an interleaved fashion such that each of the signal threads represents an independently encoded subset of frames of the video sequence; and wherein

the decoding of the sequence of frames includes receiving data representing a frame of the video sequence and identifying an error in the frame and concealing the error by predicting corresponding data using at least one frame

which is encoded in a signal thread other than that in which the error is identified.

2007/0116124	REGULATION OF DECODE-SIDE PROCESSING BASED ON PERCEPTUAL MASKING	APPLE COMPUTER, INC.	WU; Hsi-Jung | PUN; Thomas	375	H04N	20060804	2	96%	☐

Abstract: This invention is directed to a method for decoding coded video data in which decoder performance is regulated based on perceptual masking. The method includes, upon receipt of coded video data, applying the coded video data to a multi-stage decoding process; computing perceptual masking measures for the coded video data; and switching a stage of the decoding process to a lower performance level based on the computed perceptual masking measures. The method may be applied to non-reference frames and reference frames with low numbers of dependent frames. The method provides scalability among decoders to allow for various decoder and/or coded data complexity.
MainClaim: A method for decoding coded video data, comprising: upon receipt of coded video data, applying the coded video data to a multi-stage decoding process; computing perceptual masking measures for the coded video data; and switching a stage of the decoding process to a lower performance level based on the computed perceptual masking measures.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	96%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

2007/0116126	Multipass video encoding and rate control using subsampling of frames	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Wu; Hsi-Jung | Tong; Xin | Pun; Thomas	375	H04N	20060321	4	96%	☐

Abstract: An encoder includes an encoder engine, a storage device and a controller to implement an iterative coding process. The encoder engine compresses a selected portion of a data sequence. The storage device stores the compressed portion of the data sequence after each iteration. The controller selects the portion of the data sequence to compress for each iteration. The controller gathers statistics from the compressed portion of the data sequence. The gathered statistics include statistics generated by the selected frames and statistics extrapolated from the selected frames for the non-selected frames. The controller adjusts coding parameters of the encoder engine on each iteration until the gathered statistics meet a specified performance requirement.
MainClaim: A method of coding a video sequence according to an iterative coding process, comprising: subsampling frames from the video sequence on a first iteration and any intermediate iterations of the coding process; coding the subsampled frames according to adjustable coding parameters; generating statistics for the video sequence based on statistics generated by the coding for frames included therein and based on extrapolated statistics for frames excluded from the coding; if the statistics of the video sequence do not meet a specified requirement, modifying the adjustable coding parameters for a next iteration of the coding process; and coding the non-subsampled frames on a last iteration of the coding process to produce a complete coded video sequence.

7,342,965	Adaptive method and system for mapping parameter values to codeword indexes	Nokia Corporation	Lainema; Jani	375	H04N	20030425	0	100%	☐

Abstract: A method and system for entropy coding, where parameters indicative of a coded signal are mapped into codeword indexes so that a decoder can reconstruct the coded signal from the codeword indexes. When the parameter space is limited such that the coding is inefficient in that the codewords are not arranged in an orderly or contiguous fashion corresponding to the parameters, a sorting step is used to sort the parameters into different groups so that parameters in different groups are mapped into the codeword indexes in different manners such that the codeword indexes corresponding to the parameters are assigned in a contiguous and orderly manner. The sorting can be based on the absolute values of the parameters in relation with a selected value. In the decoding process, the codewords indexes are also sorted into different groups based on the value of codewords indexex in relation to the selected value.
MainClaim: A method of coding an input signal for providing a set of parameters indicative of the coded signal, wherein differences between the parameters and a predicted value are further mapped in an encoder into a plurality of codeword indexes, the codeword indexes indicative of a plurality of codewords for use in coding the differences or parameters, so as to allow a decoder to reconstruct the input signal based on the codewords, said coding method comprising: sorting the differences or parameters into at least a first group and a second group; mapping the differences or parameters in the first group based on absolute values and signs of the differences or parameters; and mapping the differences or parameters in the second group based on the absolute values.

7,486,211	Method and system for entropy coding	Apple Inc.	Lin; Ken Kengkuan | Oslick; Mitchell Howard	341	H03M	20070413	2	95%	☐

Abstract: A method and system are provided for encoding a plurality of integers with variable-length code tables constructed by combining a plurality of structured code tables. Each code table has an associated set of integer values; the sets are disjoint and exhaustive, so that every integer appears in exactly one set. An integer is encoded using the codebook associated with the set in which the integer appears.
MainClaim: A method for encoding a plurality of integers with variable-length code tables, comprising: if an integer is within a first set of integers having a value less than a predetermined threshold value, outputting the integer encoded according to a Golomb-Rice code table associated with the first set of integers; and if the integer is within a second set of integers having a value greater than or equal to the predetermined threshold value, outputting the integer encoded according to an exponential Golomb code table associated with the second set of integers.

2008/0253460	METHOD AND SYSTEM FOR ENTROPY CODING	APPLE INC.	LIN; Ken Kengkuan | OSLICK; Mitchell Howard	375	H03M	20070413	2	95%	☐

Abstract: A method and system are provided for encoding a plurality of integers with variable-length code tables constructed by combining a plurality of structured code tables. Each code table has an associated set of integer values; the sets are disjoint and exhaustive, so that every integer appears in exactly one set. An integer is encoded using the codebook associated with the set in which the integer appears.
MainClaim: A method for encoding a plurality of integers with variable-length code tables, comprising:if an integer is within a first set of integers having ci a value less than a predetermined threshold value, outputting the integer encoded according to a Golomb-Rice code table associated with the first set of integers; andif the integer is within a second set of integers having a value greater than or equal to the predetermined threshold value, outputting the integer encoded according to an exponential Golomb code table associated with the second set of integers.

2009/0103608	METHOD AND SYSTEM FOR ENTROPY CODING	APPLE INC.	LIN; Ken Kengkuan | OSLICK; Mitchell Howard	375	H04N	20081230	2	95%	☐

Abstract: A method and system are provided for encoding a plurality of integers with variable-length code tables constructed by combining a plurality of structured code tables. Each code table has an associated set of integer values; the sets are disjoint and exhaustive, so that every integer appears in exactly one set. An integer is encoded using the codebook associated with the set in which the integer appears.
MainClaim: (canceled)

7,206,456	Video coding and decoding	Nokia Corporation	Hannuksela; Miska | Wang; Ye-Kui	382	G06K	20021126	0	100%	☐

Abstract: A video coding and decoding method, wherein a picture is first divided into sub-pictures corresponding to one or more subjectively important picture regions and to a background region sub-picture, which remains after the other sub-pictures are removed from the picture. The sub-pictures are formed to conform to predetermined allowable groups of video coding macroblocks (MBs). The allowable groups of MBs can be, for example, of rectangular shape. The picture is then divided into slices so that each sub-picture is encoded independent of other sub-pictures except for the background region sub-picture, which may be coded using another sub-pictures. The slices of the background sub-picture are formed in a scan-order with skipping over MBs that belong to another sub-picture. The background sub-picture is only decoded if all the positions and sizes of all other sub-pictures can be reconstructed on decoding the picture.
MainClaim: A method of video encoding comprising the steps of: dividing a picture into a set of regular shaped coding blocks having a predetermined alignment in relation to the area of the picture, each coding block corresponding to at least one group of elementary coding elements; determining at least one shape within a picture; selecting at least one subset of the coding blocks defining at least one area covering the at least one determined shape; determining as at least one separate coding object the selected at least one subset of the coding blocks; determining as a background object the subset of the coding blocks that corresponds to the part of the picture that excludes the at least one separate coding object; encoding the at least one separate coding object; and encoding as one coding object the background object, wherein the encoding the background coding object comprises the sub-step of defining coding slices in a scan-order so that the slices are composed by consecutive coding blocks skipping those basic coding objects which are included in the at least one separate coding object.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	96%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method

comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

2007/0116126	Multipass video encoding and rate control using subsampling of frames	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Wu; Hsi-Jung | Tong; Xin | Pun; Thomas	375	H04N	20060321	4	96%	☐

Abstract: An encoder includes an encoder engine, a storage device and a controller to implement an iterative coding process. The encoder engine compresses a selected portion of a data sequence. The storage device stores the compressed portion of the data sequence after each iteration. The controller selects the portion of the data sequence to compress for each iteration. The controller gathers statistics from the compressed portion of the data sequence. The gathered statistics include statistics generated by the selected frames and statistics extrapolated from the selected frames for the non-selected frames. The controller adjusts coding parameters of the encoder engine on each iteration until the gathered statistics meet a specified performance requirement.

MainClaim: A method of coding a video sequence according to an iterative coding process, comprising: subsampling frames from the video sequence on a first iteration and any intermediate iterations of the coding process; coding the subsampled frames according to adjustable coding parameters; generating statistics for the video sequence based on statistics generated by the coding for frames included therein and based on extrapolated statistics for frames excluded from the coding; if the statistics of the video sequence do not meet a specified requirement, modifying the adjustable coding parameters for a next iteration of the coding process; and coding the non-subsampled frames on a last iteration of the coding process to produce a complete coded video sequence.

2009/0022225	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	5	96%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.

MainClaim: (canceled)

7,689,427	Methods and apparatus for implementing embedded scalable encoding and decoding of companded and vector quantized audio data	Nokia Corporation	Vasilache; Adriana	704	G10L	20060711	0	100%	☐

Abstract: The invention concerns a scalable version of an audio encoder based on lattice quantization of companded audio data, wherein the scalability is achieved using bitplane encoding. In methods and apparatus of the invention, a time-domain to discrete-frequency-domain transformation is performed on an audio signal, creating a plurality of frequency domain coefficients. The frequency domain coefficients are organized subband-wise; scaled; companded; and vector quantized using a lattice quantization method, creating scaled, companded and vector quantized coefficient vectors for each subband. Side information comprising an exponent of the scaling factor and the maximum norm of the quantized vector are generated for each subband. The side information is used to calculate the relative importance of the subbands. The subband frequency domain coefficients are then bitplane encoded in order of subband importance, creating an embedded, scalable bitstream from which the encoded audio information can be recovered at finely scalable bit rates. Decoders operating in accordance with the invention decode the scalable bitstream generally by performing the inverse of the encoding operations at a selected bitrate.

MainClaim: A computer-implemented method comprising: performing a time domain to discrete frequency domain transformation on an audio signal, generating a plurality of spectral coefficients for each of a plurality of subbands; scaling, companding and vector quantizing the spectral coefficients for each of the plurality of subbands on a subband basis to generate modified spectral coefficients; generating side information for each of the plurality of subbands; bitplane encoding the modified spectral coefficients on a subband basis using a plurality of bitplane levels, the modified spectral coefficients bitplane encoded in descending order of importance; and combining the side information and the

bitplane encoded modified spectral coefficients into a scalable bitstream from which the audio signal can be recovered at a scalable rate; where scaling, companding and vector quantizing the spectral coefficients for each of the plurality of subbands further comprises scaling the spectral coefficients with a first scaling factor, the first scaling factor comprising a first scaling factor base and a first scaling factor exponent, and where at least some of the first scaling factors for certain subbands differ from first scaling factors for other subbands.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	94%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

2009/0168898	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	375	H04N	20090306	5	93%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: (canceled)

2008/0253450	METHOD AND SYSTEM FOR VIDEO RATE CONTROL	APPLE INC.	Lin; Ken Kengkuan	375	H04B	20070413	3	93%	☐

Abstract: A method and system are provided for encoding a picture. The method includes encoding the picture into a first encoded picture using a first universal quantizer. If a size of the first encoded picture is greater than a maximum picture size, the method includes encoding the picture into a second encoded picture using small quantizers for smooth regions of the picture and large quantizers for complex regions. If a size of the second encoded picture is still greater than a maximum picture size, the method includes encoding the picture into a third encoded picture with revised quantizers for complex regions and dropping high frequency coefficients if necessary to ensure the encoded picture size never exceeds the maximum size.
MainClaim: A method of coding a picture within a video stream with a limited number of coding passes, comprising:on each pass, coding at least one slice associated with the picture, image data of the slice being subject to coefficient transform and to quantization by a quantization parameter, whereinon a first pass, quantizing all slices with a first value of the quantization parameter that is common to all slices of the picture,on a second pass, which is reached if a size of a coded picture data obtained from the first pass exceeds a predetermined limit, encoding a first set of selected slices with a second value of the quantization parameter,on a third pass, which is reached if a size of coded picture data obtained from the second pass exceeds the predetermined limit, encoding a second set of selected slices with a third value of the quantization parameter, andwhen a pass generates coded picture data that satisfies the predetermined limit, outputting the coded picture data to a channel.

6,504,873	Filtering based on activities inside the video blocks and at their boundary	Nokia Mobile Phones Ltd.	Vehvilainen; Markku	375	H04N	19980609	0	100%	☐

Abstract: The invention relates to a filtering method used for a video signal at the receiver. It is mostly suited for video compression algorithms utilizing DCT-based video compression technology. In the invention the boundaries (49) between adjacent video blocks (B5 and B6) are filtered based on the amount of activity inside the adjacent video blocks and the activity at the boundary between the adjacent video blocks. If the filtering according to the invention is performed, it is focused to a certain number of bits (42, 43, 44, 45, 46, 47) close to the boundary (49). The filtering is done by adjusting the numerical values of each video pixel close to the boundary towards a reference line, which is

defined as a linear equation leading from the numerical value of a first reference pixel (41) to the numerical value of a second reference pixel (48). The reference pixels (41, 48) are selected from the adjacent video blocks to present the smooth movement over the boundary between the adjacent video blocks (B5 and B6).

MainClaim: A method of filtering a received digital video picture, in which said digital video picture comprises video blocks, each video block comprising a certain amount of individual video pixels, each video pixel having a numerical value defining a property of the video pixel and having a certain location in the video picture, and in which video picture a first video block and a second video block located adjacent to the first video block define a boundary therebetween, the method comprising the steps of:

selecting a first video pixel from the first video block in such a way that the first video pixel is located at the boundary in the first video block to obtain a first boundary video pixel,

selecting a second video pixel from the second video block in such a way that the second video pixel is located at the boundary in the second video block to obtain a second boundary video pixel,

selecting a first reference video pixel in the first video block and a second reference video pixel in the second video block, the first reference video pixel and the second reference video pixel being other than the first boundary video pixel and the second boundary video pixel and the first reference video pixel and the second reference video pixel being placed closer to a central portion of each of said video blocks than the respective boundary video pixel, in such a way that the reference video pixels and the boundary video pixels are situated on a straight line, the straight line being transverse to the boundary, drawn from the first reference video pixel to the second reference video pixel, wherein the first and the second boundary video pixels are located between the first and the second reference video pixels on the straight line,

defining a linear equation, using the numerical values of the reference video pixels, the linear equation giving as a solution a numerical reference value to each boundary video pixel on said straight line and

filtering at least one boundary video pixel by adjusting the numerical value of the at least one boundary video pixel towards the reference value of the at least one boundary video pixel.

7,403,568	Pre-processing method and system for data reduction of video sequences and bit rate reduction of compressed video sequences using temporal filtering	Apple Inc.	Dumitras; Adriana | Normile; James Oliver | Salsbury; Ryan R.	375	H04N	20030813	3	92%	☐

Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video sequence. In addition, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. A temporal filtering method is provided for pre-processing of video frames of a video sequence. In the method, pixel values of successive frames are filtered when the difference in the pixel values between the successive frames are within high and low threshold values. The high and low threshold values are determined adaptively depending on the illumination level of a video frame to provide variability of filtering strength depending on the illumination levels of a video frame.

MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of frames, each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value and is identifiable by pixel location coordinates, the method comprising: a) setting a current unencoded frame and a next unencoded frame of the original video sequence; b) computing a statistical value representative of a luminance attribute of the current frame; c) determining a pixel value difference between a pixel value at pixel location coordinates in the next frame and a pixel value at the pixel location coordinates in the current frame; and d) filtering the pixel values at the pixel location coordinates in the current frame and the next frame if the pixel value difference is within a low threshold value and a high threshold value, the low and high threshold values being based on the statistical value.

7,430,335	Pre-processing method and system for data reduction of video sequences and bit rate reduction of compressed video sequences using spatial filtering	Apple Inc	Dumitras; Adriana | Normile; James Oliver | Salsbury; Ryan R.	382	G06K	20030813	3	92%	☐

Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video sequence. Also, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. Pre-processing may include spatial anisotropic diffusion filtering such as Perona-Malik filtering, Fallah-Ford filtering, or omni-directional filtering that extends Perona-Malik filtering to perform filtering in at least one diagonal direction. Pre-processing may also include performing filtering differently on a foreground region than on a background region of a video frame. This method includes identifying pixel locations having pixel values matching characteristics of human skin and determining a bounding shape for each contiguous grouping of matching pixel locations. The foreground region is comprised of pixel locations contained in a bounding shape and the background region is comprised of all other pixel locations.

MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of

frames, each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value, the method comprising: a) setting a current frame of the original video sequence; b) identifying a region-of-interest in the current frame; c) specifying a bounding shape that encloses at least a portion of the region-of-interest; and d) filtering pixel locations in the bounding shape differently than other pixel locations in the current frame.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	92%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

7,336,837	Method and system for coding/decoding of a video bit stream for fine granularity scalability	Nokia Corporation	Ridge; Justin | Bao; Yiliang | Karczewicz; Marta | Wang; Xianglin	382	G06K	20050111	0	100%	☐

Abstract: Methods, computer code products and devices for encoding and/or decoding video data in multiple passes, the video data having a multiple components each component including multiple coefficients. The method can starting the next pass of the encoding or decoding process immediately after the end of the current encoding or decoding pass for a given component without regard to whether other components have finished the current encoding or decoding pass. In addition, stagger delays and dampers can be used to more closely regulate the encoding or decoding process to ensure that one component is not encoded or decoded too quickly with respect to other components.
MainClaim: A method of decoding video data in a plurality of passes, the video data having a plurality of components each component including a plurality of coefficients, the method comprising: determining whether there is a non-zero coefficient to decode for a first component in a first pass; if there is a non-zero coefficient to decode for the first component in the first pass, decoding the non-zero coefficient for the first component in the first pass; if there is not a non-zero coefficient to decode for the first component in the first pass, determining whether there is a non-zero coefficient to decode for the first component in a second pass; if there is a non-zero coefficient to decode for the first component in the second pass, decoding the non-zero coefficient for the first component in the second pass determining whether there is a non-zero coefficient to decode for a second component in the first pass; if there is a non-zero coefficient to decode for the second component in the first pass, decoding the non-zero coefficient for the second component in the first pass; if there is not a non-zero coefficient to decode for the second component in the first pass, determining whether there is a non-zero coefficient to decode for the second component in the second pass; if there is a non-zero coefficient to decode for the second component in the second pass, decoding the non-zero coefficient for the second component in the second pass.

2009/0168898	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	375	H04N	20090306	5	93%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: (canceled)

2009/0304086	METHOD AND SYSTEM FOR VIDEO CODER AND DECODER JOINT OPTIMIZATION	APPLE INC.	SHI; Xiaojin | WU; Hsi-Jung		H04N	20090515	14	93%	☐

Abstract: Embodiments of the present invention provide apparatuses and methods of coding video. The apparatuses

and methods may further provide coding a source video sequence according to a block-based coding process, estimating processing capabilities of a target decoder, determining if the estimated processing capabilities are sufficient to perform deblocking filtering. If not sufficient, the apparatuses and methods may provide computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding, and transmitting the deblocking filter strengths in a coded video data signal with the coded video data. Moreover, if not sufficient, the apparatuses and methods may provide changing coding parameters including, but not limited to, block sizes, transform sizes, and Qmatrix.
MainClaim: A video coding method, comprising:coding a source video sequence according to a block-based coding process;estimating processing capabilities of a target decoder;determining if the estimated processing capabilities are sufficient to perform deblocking filtering, andif not:computing deblocking filter strengths for pixel blocks of the source video sequence to be used at decoding; andtransmitting the deblocking filter strengths in a coded video data signal with the coded video data.

2009/0169124	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	382	G06K	20090306	9	93%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: A video coding system, comprising:a transform unit to code pixel data of a plurality of blocks as transform coefficients,a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, andrun length encoders for each of the first and second sub-blocks,wherein, for the low frequency sub-blocks the run length encoder codes a pair of low frequency sub-blocks according to a scan pattern that:progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,advances to a highest frequency coefficient of a second low frequency sub-block andprogresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

7,242,815	Adaptive filter	Nokia Corporation	Kalevo; Ossi | Karczewicz; Marta	382	G06T	20040120	0	100%	☐

Abstract: In order to remove blocking artefacts from a frame which has been coded by blocks and then decoded, a certain number of pixels (n) is selected for examination from both sides of the block boundary (30). The number of pixels selected for examination depends on the image content of the frame in the environment of the block boundary, particularly on the difference of the pixel values across the block boundary (30) and the size of the quantization step of the transformation coefficients used in the transformation coding of the blocks.
MainClaim: A video encoder comprising a block boundary filtering block for removing blocking artefacts due to block boundaries between image blocks in a frame of a digital video signal, the block boundary filtering block being arranged to perform an adaptive block boundary filtering operation on a block boundary between a first image block on a first side of the block boundary and a second image block on a second side of the block boundary by: selecting a certain number of pixels for examination on both sides of the block boundary; determining a first activity measure representative of a variation in pixel value between pixels on the first side of the block boundary by examining the values of pixels selected for examination on the first side of the block boundary; determining a second activity measure representative of a variation in pixel value between pixels on the second side of the block boundary by examining the values of pixels selected for examination on the second side of the block boundary; selecting a number of pixels to be filtered from the pixels selected for examination; determining a new value for a pixel selected for filtering on the first side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the first activity measure determined on the first side of the block boundary; and determining a new value for a pixel selected for filtering on the second side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the second activity measure determined on the second side of the block boundary.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	93%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value;

coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	92%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.
MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2009/0304077	REFRESH METHOD AND APPARATUS	APPLE INC.	WU; Hsi-Jung | ZHOU; Xiaosong | SHI; Xiaojin | LIU; Yuxin		H04N	20090331	10	92%	☐

Abstract: Apparatuses and methods for improving coding processes and coding parameters for coding video data are provided for. A coder may select coding parameters for video data according to a default coding policy. The default coding policy may include selection of prediction modes (e.g., intra-coding or inter-coding) for each pixel group in each frame. A video coder may select some pixel groups in a frame to be coded as refresh pixel groups as an exception to the default assignment policies. The selection of refresh pixel groups may be based on prediction relationships among multiple frames of source video data. The default coding of the refresh pixel groups is then modified to enhanced the coding of the refresh pixel groups. The refresh pixel groups may permit fewer intra (I) frames be sent and/or may improve the quality of the recovered video.
MainClaim: A method of coding video data, comprising:selecting pixel groups from the video to be refresh pixel groups;adjusting the coding of the refresh pixel groups to code the refresh pixel groups to a predetermined quality of coding according to a refresh coding policy to produce refreshed coded video;adjusting the coding of non-refresh pixel groups to code the non-refresh pixel groups to a predetermined quality of coding according to a non-refresh coding policy to produce non-refreshed coded videooutputting to a channel the refreshed coded video.

7,400,684	Video coding	Nokia Corporation	Hannuksela; Miska | Caglar; Kerem	375	H04N	20010515	0	100%	☐

Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising comparing a first picture with a second picture, calculating a measure of the similarity between the first and the second pictures, comparing the measure of similarity with a predetermined criterion of similarity and, when the measure of similarity does not meet the predetermined criterion of similarity, outputting an indicator indicating that a non-temporally predictive error concealment method should be used by a subsequent decoder and, when the measure of similarity meets the predetermined criterion of similarity, outputting an indicator indicating that a temporally predictive error concealment method should be used by a subsequent decoder.
MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising: generating an error concealment algorithm type indicator for a picture or a part thereof, the error concealment algorithm type indicator for providing an indication of a type of error concealment algorithm, said indication to be used as the basis for choosing, in a corresponding decoding process, a particular error concealment algorithm of the type indicated available to the corresponding decoding process; and providing the error concealment algorithm type indicator for use in the corresponding decoding process separate from an indication of an encoding mode for the picture.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	96%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the

system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	96%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2007/0116437	REGION-BASED PROCESSING OF PREDICTED PIXELS	APPLE COMPUTER, INC.	PUN; Thomas | CHANG; Paul | WU; Hsi-Jung	386	H04N	20060804	2	96%	☐

Abstract: A method for decoding a compressed video data sequence containing one or more coded pixel blocks The compressed video sequence is buffered. Prediction information for each of the coded pixel blocks is reviewed. One or more groups of coded pixet blocks are formed based on the reviewed prediction information such that the coded pixel blocks within a given group have similar prediction dependencies and/or at least do not depend on a reconstructed pixel within a group of received pixel blocks to enable parallel decoding. The formed groups are scheduled for processing and subsequently decoded to produce a decoded video data sequence.
MainClaim: A decoding method for coded video data, comprising: assigning a first coded pixel block of a frame to be decoded to a decoding group; for subsequent additional coded pixel blocks of the frame; determining whether the respective subsequent coded pixel block contains a prediction reference that refers to a reconstructed pixel within the decoding group, if not, assigning the respective subsequent coded pixel block to the decoding group, and if so, terminating the decoding group; retrieving from a memory previously decoded video data referenced by the prediction references of the decoding group; and decoding the coded pixel blocks of the decoding group with reference to the retrieved decoded video data.

6,724,944	Adaptive filter	Nokia Mobile Phones, Ltd.	Kalevo; Ossi | Karczewicz; Marta	382	G06T	20000118	0	100%	☐

Abstract: In order to remove blocking artifacts from a frame which has been coded by blocks and then decoded, a certain number of pixels (n) is selected for examination from both sides of the block boundary (30). The number of pixels selected for examination depends on the image content of the frame in the environment of the block boundary, particularly on the difference of the pixel values across the block boundary (30) and the size of the quantization step of the transformation coefficients used in the transformation coding of the blocks.
MainClaim: A method for removing blocking artifacts from a frame of a digital video signal which has been coded by blocks and then decoded, comprising the steps of

analyzing the image content of the frame in the environment of a block boundary,

selecting a certain number of pixels for examination from both sides of said block boundary, wherein the number of pixels selected for examination depends on the analyzed image content of the frame in the environment of said block boundary, and

using filtering to correct the value of at least part of the pixels selected for examination.

	Pre-processing method and system								

7,403,568	for data reduction of video sequences and bit rate reduction of compressed video sequences using temporal filtering	Apple Inc.	Dumitras; Adriana | Normile; James Oliver | Salsbury; Ryan R.	375	H04N	20030813	3	93%	☐

Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video sequence. In addition, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. A temporal filtering method is provided for pre-processing of video frames of a video sequence. In the method, pixel values of successive frames are filtered when the difference in the pixel values between the successive frames are within high and low threshold values. The high and low threshold values are determined adaptively depending on the illumination level of a video frame to provide variability of filtering strength depending on the illumination levels of a video frame.

MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of frames, each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value and is identifiable by pixel location coordinates, the method comprising: a) setting a current unencoded frame and a next unencoded frame of the original video sequence; b) computing a statistical value representative of a luminance attribute of the current frame; c) determining a pixel value difference between a pixel value at pixel location coordinates in the next frame and a pixel value at the pixel location coordinates in the current frame; and d) filtering the pixel values at the pixel location coordinates in the current frame and the next frame if the pixel value difference is within a low threshold value and a high threshold value, the low and high threshold values being based on the statistical value.

7,430,335	Pre-processing method and system for data reduction of video sequences and bit rate reduction of compressed video sequences using spatial filtering	Apple Inc	Dumitras; Adriana | Normile; James Oliver | Salsbury; Ryan R.	382	G06K	20030813	3	93%	☐

Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video sequence. Also, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. Pre-processing may include spatial anisotropic diffusion filtering such as Perona-Malik filtering, Fallah-Ford filtering, or omni-directional filtering that extends Perona-Malik filtering to perform filtering in at least one diagonal direction. Pre-processing may also include performing filtering differently on a foreground region than on a background region of a video frame. This method includes identifying pixel locations having pixel values matching characteristics of human skin and determining a bounding shape for each contiguous grouping of matching pixel locations. The foreground region is comprised of pixel locations contained in a bounding shape and the background region is comprised of all other pixel locations.

MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of frames, each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value, the method comprising: a) setting a current frame of the original video sequence; b) identifying a region-of-interest in the current frame; c) specifying a bounding shape that encloses at least a portion of the region-of-interest; and d) filtering pixel locations in the bounding shape differently than other pixel locations in the current frame.

7,616,829	Reducing undesirable block based image processing artifacts by DC image filtering	Apple Inc.	Bilbrey; Brett | Ouzilevski; Alexei V.	382	G06K	20031029	1	93%	☐

Abstract: A post-processing manager provides reconstructed block based picture post-processing that is uncoupled from picture decoding by dividing a reconstructed image that was encoded using block based processing into non-overlapping blocks, creating a DC image by computing the DC value of each block, creating a zero mean image by subtracting the DC value of each block from the corresponding pixels of that block, filtering the DC image and adding the filtered DC image to the zero mean image. A weak filtering operation can be applied to reduce blocking artifacts, and a strong filtering operation can be applied to smooth luminance transitions.

MainClaim: A method for improving block based reconstructed image quality, the method comprising: dividing a reconstructed image that was encoded using block based processing into non-overlapping blocks of a specified size using a hardware post-processing manager; creating a DC image by computing a DC value of each block, wherein the DC image consists of components having a zero frequency; creating a zero mean image by subtracting the DC value of each block from the corresponding pixels of that block, wherein the zero mean image consists of low-frequency and high-frequency components having a non-zero frequency; for each DC value in the DC image in response to an absolute difference between the DC value and each of a specified number of proximate DC values being less than a specified threshold value applying a weak filtering operation to that DC value using the hardware post-processing manager in order to reduce blocking artifacts; and creating a corrected image by adding the filtered DC image to the zero mean image.

6,763,068	Method and apparatus for selecting macroblock quantization parameters in a video encoder	Nokia Corporation	Oktem; Levent	375	H04N	20011228	0	100%	☐

Abstract: A method and corresponding apparatus for selecting a sequence of quantization parameter values in a video encoder, the video encoder being arranged to encode a video frame as a sequence of n macroblocks and to assign a quantization parameter value for each macroblock of the video frame. The method includes steps (23 24 25) in which quantization parameter values assigned to at least a subset of said sequence of n macroblocks are optimized in such a way as to minimize a cost associated with their encoding.
MainClaim: A method for selecting a sequence of quantization parameter values in a video encoder, the video encoder being arranged to encode a video frame as a sequence of n macroblocks and to assign a quantization parameter value for each macroblock of the video frame, the method characterized in that it includes steps (232425) in which quantization parameter values assigned to at least a sub-set of said sequence of n macroblocks are selected so as to minimize a cost incurred for using a candidate quantizer parameter sequence in place of a suggested quantizer parameter sequence, the cost having a component representing a discrepancy between the candidate sequence and the suggested quantizer parameter sequence as measured according to a predetermined criterion.

7,492,820	Rate control for video coder employing adaptive linear regression bits modeling	Apple Inc.	Puri; Atul	375	H04N	20040330	4	93%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: A quantizer estimator, comprising: a linear regression unit to generate a quantizer estimate from input values of prior quantizer selections and coding rates, first memory to store predetermined values of quantizer selections and coding rates, the table indexed by a complexity indicator signal, second memory to store quantizer selections and coding rates of previously coded P pictures, and a selector selectively coupling an input to the linear regression unit to the first memory when a picture type signal indicates an I picture and to the second memory when the picture type signal indicates a P picture.

2009/0103610	RATE CONTROL FOR VIDEO CODER EMPLOYING ADAPTIVE LINEAR REGRESSION BITS MODELING	APPLE INC.	PURI; Atul	375	H04N	20081223	4	93%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: (canceled)

7,453,938	Target bitrate estimator, picture activity and buffer management in rate control for video coder	Apple Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Normile; James | Wu; Hsi-Jung | Nie; Xiaochun | Puri; Atul	375	H04B	20040330	3	93%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: A quantizer selection method, comprising: calculating a normalized average activity level of a picture from on image information of the picture, adjusting a base quantizer value according to the picture's normalized average activity level, and selecting a quantizer value for the picture based on the adjusted quantizer value, wherein the calculating comprises: for a plurality of macroblocks in the picture, calculating variances of image data for a plurality of blocks therein, from minimum variance levels of the macroblocks, calculating minimum activity levels of the macroblocks, wherein the minimum activity of each macroblock is calculated as: actmin=1+min(blkvar1, blkvar2, blkvar3, blkvar4), where blkvar represents the variances of 8×8 blocks within a respective macroblock, and normalizing the minimum activity levels of the macroblocks, wherein the normalized minimum activity per macroblock is calculated as: ××××××××××.ti- mes.××××× ##EQU00014## where actminavg is a sum of actmin values for all macroblocks in a previously processed picture and the actnorm values for all macroblocks in the picture are averaged to obtain the normalized average activity level of the picture.

7,711,052	Video coding	Nokia Corporation	Hannuksela; Miska | Caglar; Kerem	375	H04N	20010515	0	100%	☐

Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising receiving a

current picture for encoding, forming a temporal prediction of the current picture from a default reference picture for the current picture, comparing the default reference picture with at least one further reference picture, calculating a measure of the similarity between the default reference picture and each further reference picture and, if the measure of similarity meets a pre-determined criterion, outputting an indicator identifying the further reference picture.
MainClaim: A method of operating an apparatus for encoding a video signal to form an encoded video signal, the video signal representing a sequence of pictures, the method comprising: obtaining a local default reference picture by encoding and decoding a picture of the sequence; forming a motion compensated prediction for a current picture of the sequence or a part of a current picture from the local default reference picture; generating an indicator for use in error concealment of the current picture or respectively for said part of a current picture, the indicator configured to identify an alternative reference picture, which is sufficiently similar to the local default reference picture so that it can be used in a corresponding decoding process, instead of a corresponding default reference picture, in forming a motion compensated prediction for the current picture or respectively for said part of a current picture when the corresponding default reference picture cannot be reconstructed in the corresponding decoding process; and providing the indicator for use in the corresponding decoding process to identify the alternative reference picture for use in error concealment.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Puri; Atul	375	H04B	20030707	10	97%	☐

Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.
MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

2009/0022224	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	7	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is preformed by simple shifts.
MainClaim: (canceled)

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the

system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

6,212,235	Video encoder and decoder using motion-based segmentation and merging	Nokia Mobile Phones Ltd.	Nieweglowski; Jacek | Karczewicz; Marta	375	H04N	19990108	0	100%	☐

Abstract: This invention relates to motion compensated (MC) coding of video and to a MC prediction scheme which allows fast and compact encoding of motion vector fields retaining at the same time very low prediction error. By reducing prediction error and number of bits needed for representation of motion vector field, substantial savings of bit rate are achieved. Reduction of bit rate needed to represent motion field is achieved by merging segments in video frames, by adaptation of motion field model and by utilization of motion field model based on orthogonal polynomials.
MainClaim: Encoder for performing motion compensated encoding of video data, comprising:

motion field estimating means, having an input for receiving a first video data frame I_n and a reference frame R_{ref}, said motion field estimating means being arranged to estimate a motion vector field describing scene motion displacements of video frame pixels;

motion field encoding means having an input to receive from said motion field estimating means said estimated motion vector field; partitioning information indicating partitioning of a video frame into at least two segments said segments being a first segment S_i and a second segment S_j ; said motion field encoding means being arranged to obtain compressed motion information comprising first motion coefficients representing said motion vector field;

motion compensated prediction means for predicting a predicted video data frame based on said reference frame R_{ref} and said compressed motion information;

computing means having an input for receiving said first video data frame and said predicted video data frame, said computing means being arranged to calculate a prediction error frame based on said predicted video data frame and on said first video data frame;

prediction error encoding means for encoding said prediction error frame;

wherein said motion encoding means further comprises:

means for calculating for each segment a distortion matrix E and a distortion vector y such that a predefined measure ΔE for distortion in each segment, due to approximating said motion vector field as coefficients c_i of a set of polynomial basis function f_i, is a function of (Ec-y), c being a vector of said motion coefficients c_i ;

means for decomposing said distortion matrix E into a first matrix Q and a second matrix R such that

det $Q \neq 0$ and

Q R=E,

a subset of the set of all columns of matrix Q being a basis of a vector space defined by all possible linear combinations of all column vectors of matrix E, columns of matrix Q being orthogonal to each other;

means for calculating an auxiliary vector z according to $z=Q^{-1} y$, Q^{-1} being the inverse matrix of said first matrix Q;

means for generating for each segment a column extended matrix A comprising the columns of matrix R and vector z as an additional column, and for selecting all rows of matrix A which have elements unequal to zero in all columns due to matrix R;

means for merging segments based on selective combination of segments producing an increase in said prediction error within a certain limit;

means for generating a row extended matrix B comprising said selected rows of matrix A of said first segment S_i and said selected rows of matrix A of said second segment S_j ;

means for performing a series of multiplications of rows of matrix B with scalars unequal to zero and additions of rows of matrix B in order to obtain a modified matrix B' having in the columns due to matrix R as many rows as possible filled with zeros;

orthogonalising means receiving one of said matrices A, B and B' as an input matrix M, said orthogonalising means being arranged to replace said polynomial basis functions f_i by orthogonal basis functions f_i and to calculate second motion coefficients c using said orthogonal basis functions and said input matrix M; and

quantisation means for quantising said second coefficients c.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	93%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

6,618,509	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20010409	4	93%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block of pixels of a digitized video image using a selectable one of a plurality of coding functions, the method comprising:

establishing adjustable selection criteria for selecting a coding function;

measuring a predetermined characteristic of the block to obtain a characteristic value;

selecting a coding function based on said adjustable selection criteria and said characteristic value;

coding the block according to said coding function to obtain a coded block;

performing a quality measurement of said coded block;

adjusting said adjustable selection criteria for selecting a coding function, utilizing said quality measurement such that quality measurements of subsequent blocks are improved; and

establishing historical records of quality values and characteristic values and associated coding functions and quantization values.

6,229,917	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	19990914	1	93%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse

transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising the steps of:

establishing adjustable selection criteria for selecting a coding function;

measuring a predetermined characteristic of the block to obtain a characteristic value;

selecting a coding function based on said adjustable selection criteria and said characteristic value;

coding the block according to said coding function to obtain a coded block;

performing a quality measurement of said coded block comprising the steps of:

selecting a decoding function independent of selecting said coding function;

decoding said coded block to obtain a decoded block; and

performing a quality measurement of said decoded block;

adjusting said adjustable selection criteria for selecting a coding function utilizing said quality measurement such that quality measurements of subsequent blocks are improved;

accumulating an historical record of detected characteristics of blocks and selected decoding functions; and

adjusting said adjustable selection criteria based on said historical record.

7,664,176	Method and system for entropy decoding for scalable video bit stream	Nokia Corporation	Bao; Yiliang | Karczewicz; Marta | Ridge; Justin	375	H04N	20040714	0	100%	☐

Abstract: A method, program product and apparatus for decoding from a scalable bit stream the binarization results of a video sequence by selectively decoding syntax elements and avoiding redundancy in coding. The result is a decrease in the size of the compressed bit stream of an enhancement layer bit stream. It has been demonstrated that the compression efficiency equals that of a single, non-scalable video stream for some video sequences. These features may be achieved by determining whether a skipping flag in the base layer macro block of the video data is set, and decoding a skipping flag from an enhancement layer macro block of the video data, corresponding to the base layer macro block, only if the base layer macro block skipping flag is set.
MainClaim: A method of decoding a scalable bit stream comprising encoded video data, said method comprising: determining whether a base layer macro block of said video data contains no non-zero coefficients; decoding, with a decoder, a skipping flag for an enhancement layer macro block of said video data, corresponding to said base layer macro block, only if it is determined that said base layer macro block contains no non-zero coefficients; and decoding, with a decoder, said enhancement layer macro block without decoding a skipping flag if it is determined that said base layer macro block contains at least one non-zero coefficient.

2008/0253461	METHOD AND SYSTEM FOR VIDEO ENCODING AND DECODING	APPLE INC.	LIN; Ken Kengkuan | CHOU; Peter Hungye | OSLICK; Mitchell Howard | WALLACE; Gregory Kent | AKRAMULLAH; Shahriar M.	375	H04B	20070413	5	95%	☐

Abstract: Methods and systems are provided for encoding and decoding a video stream. Each picture in a video stream can be divided into slices, each of which contains a contiguous row of macroblocks. All the blocks corresponding to a single video component within each slice can then be used as the basis for encoding the picture. By decomposing each picture into slices, the video stream can be efficiently converted for displays of varying size and/or quality. The encoded bitstream can include a slice table to allow direct access to each slice without reading the entire bitstream. Each slice can also be processed independently, allowing for parallelized encoding and/or decoding.
MainClaim: A method of encoding a video stream, comprising:organizing source image data into a plurality of slices, each slice including multiple macroblocks having the same macroblock row in a source image and each macroblock including multiple blocks;for a plurality of blocks within a slice, generating transform coefficients for each of the plurality of blocks, each transform coefficient calculated for a video component block position; andat each block position, run-length coding the transform coefficients across the plurality of blocks to form an encoded bitstream.

	METHOD AND SYSTEM FOR VIDEO		LIN; Ken Kengkuan | CHOU; Peter Hungye | OSLICK;						

2008/0253463	ENCODING AND DECODING	APPLE INC.	Mitchell Howard | WALLACE; Gregory Kent | AKRAMULLAH; Shahriar M.	375	H04B	20070413	1	95%	☐

Abstract: Methods and systems are provided for encoding and decoding a video stream. Each picture in a video stream can be divided into slices, each of which contains a contiguous row of macroblocks. All the blocks corresponding to a single video component within each slice can then be used as the basis for encoding the picture. By decomposing each picture into slices, the video stream can be efficiently converted for displays of varying size and/or quality. The encoded bitstream can include a slice table to allow direct access to each slice without reading the entire bitstream. Each slice can also be processed independently, allowing for parallelized encoding and/or decoding.
MainClaim: A data channel carrying a bitstream, the bitstream comprising:encoded image data organized into a plurality of slices, each slice representing the coded image data from a contiguous series of macroblocks in a common macroblock row of a source image; anda slice table storing data representing locations of the plurality of slices within the bitstream, the slice table thereby marking boundaries of each slice.

2009/0168898	VIDEO CODING SYSTEM PROVIDING SEPARATE CODING CHAINS FOR DYNAMICALLY SELECTED SMALL-SIZE OR FULL-SIZE PLAYBACK	APPLE COMPUTER, INC.	WALLACE; Gregory Kent | GUO; Haitao | OSLICK; Mitchell Howard	375	H04N	20090306	5	95%	☐

Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.
MainClaim: (canceled)

7,693,220	Transmission of video information	Nokia Corporation	Wang; Ru-Shang | Kurceren; Ragip | Varsa; Viktor | Miller; Keith	375	H04B	20040223	0	100%	☐

Abstract: The present invention relates to a method for transmitting video information, in which a bitstream is formed comprising a set of frames comprising macroblocks. At least one switching frame is formed into the bitstream, macroblocks of the switching frame are arranged into a first and a second group of macroblocks, each macroblock of the first group of macroblocks are encoded by a first encoding method to provide a switching point for continuing the transmission of video information with another bitstream formed from the video information; and macroblocks of the second group of macroblocks are encoded by another encoding method. Errors in transmission of video information are reduced by forming at least one SP-encoded frame by predictively encoding the macroblocks; replacing part of the SP-encoded macroblocks with intra encoded blocks; and transmitting the encoded frame containing both predictively and intra encoded macroblocks instead of the SP-encoded frame.
MainClaim: A method for transmitting video information from an encoder in which at least one bitstream is formed from the video information comprising a set of frames, the frames comprising macroblocks, wherein the method comprises: forming a plurality of switching frames into said bitstream; arranging macroblocks of each switching frame of said plurality of switching frames into a first group of macroblocks and a second group of macroblocks; encoding each macroblock of said first group of macroblocks in said each switching frame by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and encoding macroblocks of said second group of macroblocks in said each switching frame by a second encoding method wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.

2007/0116124	REGULATION OF DECODE-SIDE PROCESSING BASED ON PERCEPTUAL MASKING	APPLE COMPUTER, INC.	WU; Hsi-Jung | PUN; Thomas	375	H04N	20060804	2	97%	☐

Abstract: This invention is directed to a method for decoding coded video data in which decoder performance is regulated based on perceptual masking. The method includes, upon receipt of coded video data, applying the coded video data to a multi-stage decoding process; computing perceptual masking measures for the coded video data; and switching a stage of the decoding process to a lower performance level based on the computed perceptual masking measures. The method may be applied to non-reference frames and reference frames with low numbers of dependent frames. The method provides scalability among decoders to allow for various decoder and/or coded data complexity.
MainClaim: A method for decoding coded video data, comprising: upon receipt of coded video data, applying the coded video data to a multi-stage decoding process; computing perceptual masking measures for the coded video data; and switching a stage of the decoding process to a lower performance level based on the computed perceptual masking measures.

	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING		HASKELL; Barin Geoffry | SINGER;						

2009/0022224	SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	7	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is preformed by simple shifts.
MainClaim: (canceled)

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

6,983,016	Method for detecting errors in video information	Nokia Mobile Phones, LTD	Hourunranta; Ari	375	H04N	20010504	0	100%	☐

Abstract: A method for detecting errors in an image signal. The image signal is produced by dividing an image into image blocks, and coding is performed in which at least predictive coding is performed on an image block to produce inter-coded image information for the image block. The inter-coded image information comprises at least one prediction error block containing prediction error information. A decoding is performed to recover prediction error information contained in the at least one prediction error information contained in the at least one prediction error block. A prediction error block check is performed in which prediction error information contained in the at least one prediction error block is examined to detect errors in the inter-coded image information for the image block.
MainClaim: A method for detecting errors in an image signal, in which the image signal is produced by dividing an image into image blocks, and a coding stage is performed in which at least predictive coding is performed on an image block to produce inter-coded image information for said image block, said inter-coded image information comprising at least one prediction error block containing prediction error information, and a decoding stage is performed to recover prediction error information contained in said at least one prediction error block, wherein a prediction error block check is performed in which prediction error information contained in said at least one prediction error block is examined to detect errors in the inter-coded image information for the image block, said inter-coded image information for the image block comprises a macroblock comprising at least one luminance prediction error block containing prediction, error information relating to a luminance component of the image signal and at least one chrominance prediction error block containing prediction error information relating to a chrominance component of the image signal, said image signal comprising at least one chrominance component, the prediction error information contained in said at least one luminance prediction error block and said at least one chrominance prediction error block of said macroblock comprise pixel error values and said pixel error values of said at least one luminance prediction error block and said pixel error values of said a least one chrominance prediction error block are filtered to determine pixel error values of said at least one luminance prediction error block and said at least one chrominance prediction error block which are significant with respect to a threshold value and a third comparison stage is performed in which significant pixel error values comprised by said at least one chrominance prediction error block of said macroblock are compared with pixel error values at corresponding locations in said at least one luminance prediction error block, wherein if the number of locations for which a pixel error value in said at least one chrominance prediction error block is significant with respect to said threshold value and a pixel error value at a corresponding location in said at least one luminance prediction error block is not significant with respect to said threshold value exceeds a fourth value range, the inter-coded image information for the image block is considered to contain at least one error.

2008/0095238	SCALABLE VIDEO CODING WITH FILTERING OF LOWER LAYERS	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin	375	H04N	20071018	19	92%	☐

Abstract: A First Improvement is Described for Prediction of Motion Vectors to be Used in Prediction of video data for enhancement layer data. Arbitrary pixelblock partitioning between base layer data and enhancement layer data raises problems to identify base layer motion vectors to be used as prediction sources for enhancement layer motion vectors. The disclosed method develops enhancement layer motion vectors by scaling a base layer pixelblock partition map according to a size difference between the base layer video image and the enhancement layer video image, then identified scale base layer pixelblocks that are co-located with the enhancement layer pixelblocks for which motion vector prediction is to be performed. Motion vectors from the scaled co-located base layer pixelblocks are averaged, weighted according to a degree of overlap between the base layer pixelblocks and the enhancement layer pixelblock. Another improvement is obtained by filtering recovered base layer image data before being provided to an enhancement layer decoder. When a specified filter requires image data outside a prediction region available from a base layer decoder, the prediction region data may be supplemented with previously-decoded data from an enhancement layer at a border of the prediction region.

MainClaim: A method of predicting motion vectors in a multi-layer video decoding process, comprising:determining a size difference between recovered video data obtained solely by a base layer decode process and recovered video data obtained from an enhancement layer decode process;scaling a base layer pixelblock partition map according to the determined size difference;predicting a motion vector of an enhancement layer pixelblock according to:determining which base layer pixelblock(s), when scaled according to the size difference, are co-located with the enhancement layer pixelblock,scaling motion vectors of the co-located base layer pixelblock(s) according to the size difference, andaveraging the scaled motion vectors of the co-located base layer pixelblock(s), wherein the averaging weight contribution of each scaled motion vector according to a degree of overlap between the enhancement layer pixelblock and the respective scaled base layer pixelblock.

2010/0086063	QUALITY METRICS FOR CODED VIDEO USING JUST NOTICEABLE DIFFERENCE MODELS	APPLE INC.	Haskell; Barin Geoffry | Shi; Xiaojin	375	H04N	20090331	8	92%	☐

Abstract: Systems and methods for applying a new quality metric for coding video are provided. The metric, based on the Just Noticeable Difference (JND) distortion visibility model, allows for efficient selection of coding techniques that limit perceptible distortion in the video while still taking into account parameters, such as desired bit rate, that can enhance system performance. Additionally, the unique aspects of each input type, system and display may be considered. Allowing for a programmable minimum viewing distance (MVD) parameter also ensures that the perceptible distortion will not be noticeable at the specified MVD, even though the perceptible distortion may be significant at an alternate distance.

MainClaim: A method comprising:coding an original pixel block into a plurality of coded pixel blocks using a variety of coding techniques;determining a distortion value for each coded pixel block wherein the distortion value represents Just Noticeable Difference distortion of the coded pixel block upon decoding;discarding any coded pixel block with the distortion value above an acceptable threshold value; andselecting a coded pixel block from the remaining coded pixel blocks for output to a transmission channel.

6,711,209	Adaptive motion vector field coding	Nokia Mobile Phones Ltd.	Lainema; Jani | Karczewicz; Marta	375	H04B	20000121	0	100%	☐

Abstract: A method for motion compensated encoding of video data. The method comprises the steps of: generating a motion vector field of video pixels of a current frame to be coded based on a reference frame; obtaining segmenting information defining the division of the current frame into image segments; coding the motion vector field of an image segment S_k to provide compressed motion information comprising a motion coefficient vector c_k comprising a set of motion coefficients c_i, such that $c_i \cdot f_i$ (x,y) represents the motion vector field, whereby f_i (x,y) defines a certain set of basis functions, wherein i is an index defining a correspondence between each basis function and a corresponding motion coefficient; predicting a motion vector field of a subsequent image segment S_L with a set of predicted motion coefficients p_i based upon the previously generated motion coefficient vector c_k ; generating for the subsequent segment S_L a set of refinement motion coefficients r_i corresponding to the difference between the set of motion coefficients c_i and a set of predicted motion coefficients p_i such that $p_i + r_i = c_i$. Another aspects of the invention comprise corresponding video codec, mobile station, telecommunications network and computer program product.

MainClaim: A video codec for motion compensated encoding of video data comprising:

means for generating a motion vector field of video pixels of a current frame to be coded based on a reference frame;

means for obtaining segmenting information defining the division of the current frame into image segments;

a motion field coder for coding the motion vector field of an image segment S_k to provide compressed motion information comprising a motion coefficient vector c_k comprising a set of motion coefficients c_i, such that $c_i \cdot f_i$ (x,y) represents the motion vector field, whereby f_i (x,y) defines a certain set of basis functions, wherein i is an index defining a correspondence between each basis function and a corresponding motion coefficient;

prediction means for predicting a motion vector field of a subsequent image segment S_L with a set of predicted motion coefficients p_i based upon the previously generated motion coefficient vector c_k ;

means for generating for the subsequent segment S_L a set of refinement motion coefficients r_i corresponding to the difference between the set of motion coefficients c_i and a set of predicted motion coefficients p_i such that $p_i + r_i = c_i$.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	92%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.

MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

7,161,983	Adaptive motion vector field coding	Nokia Corporation	Lainema; Jani | Karczewicz; Marta	375	H04B	20040305	0	100%	☐

Abstract: A method for motion compensated encoding of video data.The method comprises the steps of: generating a motion vector field of video pixels of a current frame to be coded based on a reference frame; obtaining segmenting information defining the division of the current frame into image segments; coding the motion vector field of an image segment S_k to provide compressed motion information comprising a motion coefficient vector c_k comprising a set of motion coefficients c_i, such that $c_i f_i(x,y)$ represents the motion vector field, whereby $f_i(x,y)$ defines a certain set of basis functions, wherein i is an index defining a correspondence between each basis function and a corresponding motion coefficient; predicting a motion vector field of a subsequent image segment S_L with a set of predicted motion coefficients p_i based upon the previously generated motion coefficient vector c_k; generating for the subsequent segment S_L a set of refinement motion coefficients r_i corresponding to the difference between the set of motion coefficients c_i and a set of predicted motion coefficients p_i such that $p_i+r_i=c_i$. Another aspects of the invention comprise corresponding video codec, mobile station, telecommunications network and computer program product.

MainClaim: A video encoder for motion compensated encoding of video data comprising: means for generating a first motion vector for a first image segment S_K of a current frame to be encoded, based on a reference frame; motion field encoding means for representing the first motion vector as a first motion coefficient vector c_K comprising a first set of absolute motion coefficients c_i, such that $c_i f_i(x,y)$ represents an approximation of the first motion vector, $f_i(x,y)$ defines a set of basis functions and i is an index that defines correspondences between particular basis functions and absolute motion coefficients c_i; means for generating a second motion vector for a second image segment S_L of the current frame to be subsequently encoded, based on the reference frame; motion field encoding means for representing the second motion vector as a second motion coefficient vector c_L comprising a second set of absolute motion coefficients c_j, such that $c_j f_j(x,y)$ represents an approximation of the second motion vector, $f_j(x,y)$ defines a set of basis functions and j is an index that defines correspondences between particular basis functions and absolute motion coefficients c_j; motion coefficient prediction means for predicting a predicted motion coefficient vector p_L for the second image segment S_L, the predicted motion coefficient vector p_L comprising a set of predicted motion coefficients p_j, based upon the previously generated first motion coefficient vector c_K; means for representing each of the absolute motion coefficients c_j of the second set of absolute motion coefficients as a sum of a corresponding predicted motion coefficient p_j and refinement motion coefficient r_j, where each of the refinement motion coefficients r_j represents the difference between one of the absolute motion coefficients c_j and the corresponding predicted motion coefficient p_j; means for representing the second motion coefficient vector c_L as a vector r_L of refinement motion coefficients r_j.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	92%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.

MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic

adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

2010/0110303	Look-Ahead System and Method for Pan and Zoom Detection in Video Sequences	APPLE INC.	Dumitras; Adriana | Haskell; Barin G.	348	H04N	20100111	5	92%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.
MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising:selecting a set of frames from a video sequence;determining a set of motion vectors for each frame in the set of frames;determining a motion angle for each motion vector;identifying at least two regions in each frame, wherein a first region includes motion vectors having a first orientation and the second region includes motion vectors having a second orientation;determining percentages of each frame covered by each of the at least two regions;determining a statistical measure of the motion vectors for at least one of the two regions using the look-ahead detector; andcomparing the percentages and statistical measure to threshold values to identify whether the set of frames includes at least one of a pan and a zoom.

7,583,844	Method, device, and system for processing of still images in the compressed domain	Nokia Corporation	Fehmi; Chebil | Asad; Islam	382	G06K	20050311	0	100%	☐

Abstract: The present invention concerns the manipulation and especially the filtering of image data in the compressed domain. A method and a device is provided which allows for manipulating image data in the compressed domain transformed from image data in the spatial domain with the help of a wavelet-based transform algorithm. The advantage of the inventive concept is to accelerate the filtering in time, such that underlying constraints in device computational power, storage, memory, and electrical power consumption are applicable for image manipulation/filtering.
MainClaim: Method, comprising: at a consumer electronic device, providing compressed image data in a compressed domain obtained from image data in a spatial domain by a subband encoder, in particular based on a wavelet transform; at the consumer electronic device, providing a transformed linear function F(k) in the compressed domain of a linear function f(k) defined in the spatial domain, wherein the transformed linear function F(k) is obtainable by transforming the linear function f(k) from the spatial domain into the compressed domain, wherein the linear function f(k) is composed of at least one out of a group comprising at least one linear offset K and at least one linear scaling factor .lamda., wherein the linear function f(k) is applicable to the image data in the spatial domain to obtain modified image data in the spatial domain; and at the comsumer electronic device, applying the transformed linear function F(k) to a defined number of subbands of the compressed image data for modifying the image data in the compressed domain resulting in modified subbands.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	93%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

6,907,142	Method for encoding images, and an image coder	Nokia Mobile Phones Ltd.	Kalevo; Ossi | Vahteri; Joni | Dobrin; Bogdan-Paul | Karczewicz; Marta	382	G06K	20010119	0	100%	☐

Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided

into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.
MainClaim: A method for encoding a digital image in a block-based manner, in which a spatial prediction for a block is performed to reduce amount of information to be transmitted, wherein the method comprises:

examining pixel values of a neighbouring block of a block to be predicted to determine a classification for the neighbouring block according to the image contents of said neighbouring block;

selecting a prediction method for the block to be predicted on the basis of said classification; and

forming a spatial prediction for the block to be predicted using the selected prediction method.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20060516	8	94%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

7,079,695	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20030807	1	94%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A machine-implemented method for coding a block of pixels of a digitized image using a selectable one of a plurality of coding functions, the method comprising: establishing adjustable selection criteria for selecting a coding function; measuring a characteristic of the block to obtain a characteristic value; selecting a coding function based on said adjustable selection criteria and said characteristic value; coding the block according to said coding function to obtain a coded block; performing a quality measurement of said coded block; and adjusting said adjustable selection criteria, based on said quality measurement, for use in determining which coding function is to be selected from the plurality of coding functions to code at least one further block.

6,618,509	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung | Tian; Yu Tina | Lu; Jian | Chu; Ke-Chiang	382	G06K	20010409	4	94%	☐

Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.
MainClaim: A computer-implemented method for coding a block of pixels of a digitized video image using a selectable

one of a plurality of coding functions, the method comprising:

establishing adjustable selection criteria for selecting a coding function;

measuring a predetermined characteristic of the block to obtain a characteristic value;

selecting a coding function based on said adjustable selection criteria and said characteristic value;

coding the block according to said coding function to obtain a coded block;

performing a quality measurement of said coded block;

adjusting said adjustable selection criteria for selecting a coding function, utilizing said quality measurement such that quality measurements of subsequent blocks are improved; and

establishing historical records of quality values and characteristic values and associated coding functions and quantization values.

5,822,470	Method for picture sharpening in a digital video transmission system using signal compression	Nokia Technology GmbH	Vehvilainen; Markku	382	G06F	19960206	0	100%	☐

Abstract: The invention relates to a method for processing a data signal which is transformed into an n-dimensional matrix form and which is to be processed by an n-dimensional quantizing matrix. In the invention the n-dimensional quantizing matrix is processed by an n-dimensional transfer function matrix before processing the data signal. In order to form the transfer function matrix, at least one transfer function is selected, and it is given a fixed point in the n-dimensional transfer matrix. At least a part of the elements of the transfer function matrix are processed by at least one transfer function, so that elements at a predetermined distance from the fixed point are processed by a processing quantity dependent on the transfer function.
MainClaim: A method for processing a video signal which is transformed into an n-dimensional matrix form and which is to be processed by an n-dimensional quantizing matrix (W(i,j)), characterized in that the n-dimensional quantizing matrix (W(i,j)) is processed by an n-dimensional transfer function matrix (P(i,j) before processing the video signal and further characterized in that in order to form the transfer function matrix (P(i,j));

at least one transfer function (H(k)) is selected;

each transfer function (H(k)) is given at least one fixed point in the n-dimensional transfer function matrix P(i,j); and

at least a part of the elements of the transfer function matrix P(i,i) are formed with the aid of at least one transfer function (H(k)) so that elements of the transfer function matrix P(i,j) which are at a predetermined distance from the fixed point are generated with the aid of a processing quantity dependent on the transfer function (H(k)).

5,719,961	Adaptive technique for encoder and decoder signal transformation	Apple Computer, Inc.	Normile; James Oliver | Wang; Katherine Shu-wei | Chu; Ke-Chiang | Ponceleon; Dulce Beatriz | Wu; Hsi-Jung	382	G06K	19960329	1	93%	☐

Abstract: A signal processing system determines the characteristic of a signal for encoding or decoding by examining and classifying such signal, and then applies a transformation or inverse transformation to such signal. Depending on classification of the signal, various transforms or inverse transforms are applicable adaptively thereto.
MainClaim: A computer implemented method of adaptively encoding an image, comprising:

partitioning the image into a plurality of blocks, each block having at least one block coefficient derived from pixel values of the block;

for each block:

classifying the block according to its block coefficients as one of a plurality of discrete block types;

responsive to the block type of the block, dynamically configuring and applying to the block selected operations from group of operations consisting of:

a discrete cosine transform of the block;

a quantization of the block;

a variable length encoding of the block;

an inverse quantization of the block; and,

an inverse discrete cosine transform;

wherein there is at least one block type for which the discrete cosine transform is not selected;

applying to the block each of the selected operation.

7,379,956	Encoding and decoding data arrays	Apple Inc.	Kumar; Roger | Handley; Maynard | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	708	G06F	20030430	5	92%	☐

Abstract: Some embodiments of the invention provide a method of performing a Discrete Cosine Transform ("DCT") encoding or decoding coefficients of a data array by (1) multiplying the coefficients by a scalar value before the encoding or decoding, and then (2) dividing the encoded or decoded coefficients by the scalar value. When used in conjunction with fixed-point arithmetic, this method increases the precision of the encoded and decoded results. In addition, some embodiments provide a method of performing a two-dimensional (2D) Inverse Discrete Cosine Transform ("iDCT"). This method splits a pre-multiplication operation of the iDCT into two or more separate stages. When used in conjunction with fixed-point arithmetic, this splitting increases the precision of the decoded results of the iDCT.
MainClaim: A method comprising: decoding an encoded video stream that has been encoded according to a two-dimensional (2D) transform encoding operation that is separable into two one-dimensional (1D) transform operations, the encoded video stream comprising a plurality of encoded values for a plurality of encoded video images, said decoding comprising: parsing encoded values out of the data stream and creating a two-dimensional data array that stores the encoded values in a particular scan order, wherein the values in the created data array are encoded in both dimensions of the array; multiplying each value in the data array by a scalar value, wherein the data array is an array of data values from a video image; performing a first 1D inverse transform to the data array resulting from the multiplying; transposing the data array resulting from the first 1D inverse transform; performing a second 1D inverse transform to the data array resulting from the transposing; and dividing by the scalar value each value in the data array resulting from the second 1D inverse transform to produce a data array comprising decoded values, the data array comprising decoded values being produced without a second transposing step.

7,610,195	Decoding of predictively coded data using buffer adaptation	Nokia Corporation	Ojanpera; Juha	704	G10L	20060601	0	100%	☐

Abstract: A decoder (e.g., an AAC-LTP decoder) receives a stream containing coded audio data and prediction data. The coded data is upsampled or downsampled during decoding. Portions of the decoded data are stored in a buffer for use in decoding subsequent coded data. The buffer into which the decoded data is placed has different dimensions than a buffer used in a coder when generating the coded data. A portion of the data in the decoder buffer is identified and modified with interleaved zero values so as to correspond to the dimensions of the prediction coding buffer in the coder.
MainClaim: A method comprising: receiving a stream containing coded data and predictive information associated with the coded data, the predictive information having been generated based on data in a predictive coding buffer; receiving a factor indicative of an amount by which the coded data is to be either upsampled or downsampled as part of decoding the coded data; generating decoded data from the coded data using the received factor and the predictive information; buffering at least a portion of the decoded data in one or more buffers, at least one of the one or more buffers having at least one dimension different from a corresponding dimension of the prediction coding buffer; identifying at least a portion of the buffered decoded data for use in decoding subsequent coded data; and modifying the identified data to correspond to the at least one prediction coding buffer dimension.

2009/0170435	DATA FORMAT CONVERSION FOR BLUETOOTH-ENABLED DEVICES	APPLE INC.	Bush; Jeff	455	H04B	20081230	2	92%	☐

Abstract: Format converters and methods of performing data format conversion are provided. The format converters may convert compressed data into a different compressed format that is compatible with the Bluetooth transmission standard. The format converter may decompose the compressed data into frequency domain data streams of different frequency sub-bands. The format converter may transform each data stream of frequency domain information from a first encoding scheme to a second encoding scheme, and may then quantize the transformed data steams based on bit allocation information for each sub-band. The format converters may also include a bit allocation component which computes the bit allocation information for each sub-band based on an unfiltered version of the compressed data.
MainClaim: A format converter for performing format conversion on frequency domain information having a first encoding format, wherein the frequency domain information is contained within a frequency band, the format converter comprising:a band separation module configured to decompose an unfiltered version of the frequency domain information into a plurality of data streams, wherein each of the data streams is associated with a distinct sub-band of the frequency band;a bit allocation unit configured to compute bit allocation information for each of the sub-bands using the unfiltered version of the frequency domain information;a plurality of conversion modules each configured to transform one of the data streams from the first encoding format to a second encoding format; anda plurality of quantizers, wherein each of the quantizers is configured to quantize one of the transformed data streams based on the bit allocation information for an associated sub-band.

7,636,395	Method and device for splicing video	Nokia Corporation	Yongfang; Liang | Fehmi; Chebil |	375	H04N	20050314	0	100%	

	data in compressed domain		Asad; Islam						☐

Abstract: The present invention provides a method, a module, and a device, which enable splicing of MPEG-4 simple profile compatible bitstreams in compressed domain into a seamless bitstream. The method of the present invention enables splicing on devices with constraints in processing power, storage and memory capacity and limited electrical supply. The splicing is based on a mode and/or format translation operated both in compressed domain.
MainClaim: A method, comprising: providing a compressed first input bitstream and a compressed second input bitstream to be spliced, said first and second input bitstreams being compatible with MPEG-4 simple profile; and performing for each frame in the input bitstreams a mode translation in compressed domain by establishing a Video Object, Video Object Layer, and Video Object Plane with packet resynchronization in an output bitstream; adjusting a Video Object Plane time increment field for each frame in the input bitstreams to correspond to an output Video Object Plane time increment resolution field; removing data partitioning, if one of the input bitstreams uses partitioned data error resilience, by obtaining data of a first data partition and a second data partition and rearranging the data of each macro-block; and if one of the input bitstream uses Reversible Variable-Length Codes, re-encoding each macro-block by reversible variable-Length decoding, variable-length encoding each macro-block, and including the macro-block into the output bitstream; otherwise copying transform coefficients included in the macro-block to the output bitstream; wherein said mode translation in compressed domain is performed for each macro-block in the video packet in the input bit streams and for each video packet in the frame thereof.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	96%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2007/0116437	REGION-BASED PROCESSING OF PREDICTED PIXELS	APPLE COMPUTER, INC.	PUN; Thomas | CHANG; Paul | WU; Hsi-Jung	386	H04N	20060804	2	96%	☐

Abstract: A method for decoding a compressed video data sequence containing one or more coded pixel blocks The compressed video sequence is buffered. Prediction information for each of the coded pixel blocks is reviewed. One or more groups of coded pixet blocks are formed based on the reviewed prediction information such that the coded pixel blocks within a given group have similar prediction dependencies and/or at least do not depend on a reconstructed pixel within a group of received pixel blocks to enable parallel decoding. The formed groups are scheduled for processing and subsequently decoded to produce a decoded video data sequence.
MainClaim: A decoding method for coded video data, comprising: assigning a first coded pixel block of a frame to be decoded to a decoding group; for subsequent additional coded pixel blocks of the frame; determining whether the respective subsequent coded pixel block contains a prediction reference that refers to a reconstructed pixel within the decoding group, if not, assigning the respective subsequent coded pixel block to the decoding group, and if so, terminating the decoding group; retrieving from a memory previously decoded video data referenced by the prediction references of the decoding group; and decoding the coded pixel blocks of the decoding group with reference to the retrieved decoded video data.

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	96%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video

picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

7,236,523	Method for performing motion estimation in video encoding, a video encoding system and a video encoding device	Nokia Corporation	Guevorkian; David | Launiainen; Aki | Liuha; Petri	375	H04N	20020830	0	100%	☐

Abstract: A method for performing video motion estimation in video encoding, in which a video signal consists of frames comprising blocks. In the method a combined comparison value is calculated between a current video block of a frame to be encoded and at least one other video block of another frame. The current video block of the frame to be encoded comprises a set of first data values, and the at least one other video block of another frame comprises a set of second data values. Data value pairs are formed of data values from the set of first data values and equal number of corresponding data values from the set of second data values. The combined comparison value is formed by defining comparison values, each of which is defined by using data values of one data value pair of the data value pairs. Further, at least one threshold value is defined, and it is determined whether the process for defining the combined comparison value can be terminated.
MainClaim: A method for performing video motion estimation in video encoding, in which a video signal consists of frames comprising blocks, a combined comparison value is formed by using a current video block of a frame to be encoded and at least one other video block of another frame, said current video block of the frame to be encoded comprises a set of first data values, said at least one other video block of another frame comprises a set of second data values, data value pairs are formed of data values from said set of first data values and equal number of corresponding data values from said set of second data values, and said combined comparison value is formed by defining comparison values, each of which is defined by using data values of one data value pair of said data value pairs, at least one threshold value is defined, and it is determined whether the process for defining said combined comparison value can be terminated, wherein the method comprises at least: a calculation step for forming at least one sub-set of comparison values each consisting of at least one comparison value, an accumulation step for forming a signal indicative of the current cumulative comparison value, which is updated iteratively using said at least one sub-set of comparison values obtained at the calculation step. a decision step performing the determination whether the process can be terminated by comparing at least one signal with at least one threshold value, and termination and initialisation of a new process for defining said combined comparison value according to the decision made at the decision step.

7,492,820	Rate control for video coder employing adaptive linear regression bits modeling	Apple Inc.	Puri; Atul	375	H04N	20040330	4	92%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: A quantizer estimator, comprising: a linear regression unit to generate a quantizer estimate from input values of prior quantizer selections and coding rates, first memory to store predetermined values of quantizer selections and coding rates, the table indexed by a complexity indicator signal, second memory to store quantizer selections and coding rates of previously coded P pictures, and a selector selectively coupling an input to the linear regression unit to the first memory when a picture type signal indicates an I picture and to the second memory when the picture type signal indicates a P picture.

7,453,938	Target bitrate estimator, picture activity and buffer management in rate control for video coder	Apple Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Normile; James | Wu; Hsi-Jung | Nie; Xiaochun | Puri; Atul	375	H04B	20040330	3	92%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: A quantizer selection method, comprising: calculating a normalized average activity level of a picture from on image information of the picture, adjusting a base quantizer value according to the picture's normalized average activity level, and selecting a quantizer value for the picture based on the adjusted quantizer value, wherein the calculating comprises: for a plurality of macroblocks in the picture, calculating variances of image data for a plurality of blocks therein, from minimum variance levels of the macroblocks, calculating minimum activity levels of the macroblocks, wherein the minimum activity of each macroblock is calculated as: actmin=1+min(blkvar1, blkvar2,

blkvar3, blkvar4), where blkvar represents the variances of 8×8 blocks within a respective macroblock, and normalizing the minimum activity levels of the macroblocks, wherein the normalized minimum activity per macroblock is calculated as: ××××××××××.ti- mes.××××× ##EQU00014## where actminavg is a sum of actmin values for all macroblocks in a previously processed picture and the actnorm values for all macroblocks in the picture are averaged to obtain the normalized average activity level of the picture.

2009/0103610	RATE CONTROL FOR VIDEO CODER EMPLOYING ADAPTIVE LINEAR REGRESSION BITS MODELING	APPLE INC.	PURI; Atul	375	H04N	20081223	4	92%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: (canceled)

6,968,005	Video coding	Nokia Mobile Phones Limited	Hannuksela; Miska	375	H04N	20010515	0	100%	☐

Abstract: A method of encoding a video signal representing a sequence of pictures, the method employing both non-temporal prediction and temporal prediction, wherein the method comprises, for each picture that forms a reference picture for the temporal prediction of another picture, associating with each such picture an indicator indicating the temporal order of the reference picture in the encoded video signal relative to the other reference pictures in the encoded video signal.
MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal comprising temporally independent INTRA pictures and temporally predicted pictures, wherein the INTRA pictures and at least some of the temporally predicted pictures are used to form reference pictures for the temporal prediction of other pictures in the video sequence, comprising indicating an encoding order of those pictures used to form reference pictures in the encoded video signal with a sequence indicator having an independent numbering scheme, such that consecutive pictures used to form reference pictures in encoding order are assigned sequence indicator values that differ with respect to each other by a predetermined amount independent of the number of non-reference pictures encoded between successive reference pictures.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	97%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video

picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

7,668,240	Method and apparatus for variable accuracy inter-picture timing specification for digital video encoding	Apple Inc.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04B	20070110	1	97%	☐

Abstract: A method and apparatus for variable accuracy inter-picture timing specification for digital video encoding is disclosed. Specifically, the present invention discloses a system that allows the relative timing of nearby video pictures to be encoded in a very efficient manner. In one embodiment, the display time difference between a current video picture and a nearby video picture is determined. The display time difference is then encoded into a digital representation of the video picture. In a preferred embodiment, the nearby video picture is the most recently transmitted stored picture. For coding efficiency, the display time difference may be encoded using a variable length coding system or arithmetic coding. In an alternate embodiment, the display time difference is encoded as a power of two to reduce the number of bits transmitted.
MainClaim: An encoder comprising: at least one module for encoding a first video picture, a second video picture, a third video picture, a first order value of the first video picture, a second order value of the second video picture, and a third order value of the third video picture, wherein the first, second, and third order values are for computing a motion vector for the second video picture based on a motion vector for the third video picture; and a storage for storing the encoded first video picture, the encoded second video picture, the encoded third video picture, the encoded first order value, the encoded second order value and the encoded third order value in a bitstream.

7,486,733	Method for performing motion estimation in video encoding, a video encoding system and a video encoding device	Nokia Corporation	Guevorkian; David | Launiainen; Aki | Liuha; Petri	375	H04B	20051222	0	100%	☐

Abstract: A current video block of a frame to be encoded comprises a set of first data values, and at least one other video block of another frame comprises a set of second data values. Data value pairs are formed of data values from said set of first data values and equal number of corresponding data values from said set of second data values. A combined comparison value is formed by defining comparison values, each of which is defined by using data values of one data value pair of said data value pairs. Said data value pairs are divided into at least two sub-sets of data value pairs each sub-set comprising equal number of data value pairs. The calculation of the comparison values is interlaced such that the calculation of comparison values of one sub-set of data value pairs is initiated in a time after initiating and before completing the calculation of comparison values of another sub-set of data value pairs.
MainClaim: Method for performing video motion estimation in video encoding, in which a video signal includes video frames, video frames comprise blocks, and a combined comparison value is formed by using a current video block of a frame to be encoded and at least one other video block of another frame, said current video block of the frame to be encoded comprises a set of first data values, said at least one other video block of another frame comprises a set of second data values, data value pairs are formed of data values from said set of first data values and an equal number of corresponding data values from said set of second data values, said combined comparison value is formed by defining comparison values, each of which is defined by using data values of one data value pair of said data value pairs, and said data value pairs are divided into at least two sub-sets of data value pairs, each sub-set comprising equal number of data value pairs, wherein the calculation of said comparison values is interlaced such that the calculation of comparison values of one sub-set of data value pairs is initiated in a time after initiating and before completing the calculation of comparison values of another sub-set of data value pairs, and that initiations of the calculations of comparison values take place at certain time instances, and the duration between these time instances is shorter than the completion time of the calculation of the comparison values.

2009/0103610	RATE CONTROL FOR VIDEO CODER EMPLOYING ADAPTIVE LINEAR REGRESSION BITS MODELING	APPLE INC.	PURI; Atul	375	H04N	20081223	4	92%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: (canceled)

6,611,561	Video coding	Nokia Mobile Phones Limited	Hannuksela; Miska | Hourunranta; Ari	375	H04N	20000217	0	100%	☐

Abstract: A methodic and apparatus for video decoding including receiving encoded video data; decoding the video data

to form decoded video data and determining if the decoded the video data contains an error. When it is determined that an error is present, a message is sent to a transmitting video encoder requesting an update of at least the portion of the video data containing the error, wherein the update message is only sent if a pre-determined period has elapsed since a previous update message was sent. A complementary encoder is also described.
MainClaim: A method of video coding comprising:

receiving encoded video data by a video decoder;

decoding said video data to form decoded video data representing successive pictures of a video sequence; and

determining if the decoded video data contains an error and, when it is determined that an error is present, sending an update message from said video decoder to a transmitting video encoder requesting an update of at least a portion of the video data containing the error,

wherein a further update message for a corresponding portion of the video data is transmitted from said video decoder to said video encoder if a predetermined time period has elapsed as measured from a point in time when said update message was transmitted from said video decoder to said transmitting video encoder, thereby limiting unnecessary transmission of update messages by performing transmission of said further update message after said predetermined time period has elapsed.

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	95%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

2009/0022225	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	5	95%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

2009/0022224	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	7	95%	☐

	OPERATIONS								

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is preformed by simple shifts.
MainClaim: (canceled)

7,200,174	Video coding system	Nokia Corporation	Lainema; Jani | Karczewicz; Marta	375	H04B	20030519	0	100%	☐

Abstract: A motion estimation method and system for a video coder are disclosed. The system comprises an input for a video image to be coded. It also comprises a hierarchical series of motion estimators of varying complexity, for estimating a motion vector field between the received image and a reference image. The subsequent motion estimator in the series is selected by a control means if a prediction error associated with the motion vector field estimated by the currently selected motion estimator exceeds a predetermined threshold. When available, inherited and predicted motion information is used to improve prediction quality.
MainClaim: An encoder for performing motion compensated encoding of a sequence of video frames having picture elements, the encoder comprising: a memory for storing a reference frame; a motion field estimation block arranged to refine a set of prediction motion coefficients, previously estimated for an at least one first picture element of a current frame, by using a series of motion estimation methods of varying complexity to generate a first candidate set of motion coefficients for a second picture element of the current frame, and arranged to select either a set of initial motion coefficients or motion coefficients estimated using the reference frame as a selected set of motion coefficients, and to refine the set of selected motion coefficients by using a series of motion estimation methods of varying complexity to generate a second candidate set of motion coefficients for the at least one second picture element of the current frame; and a motion field coding block for comparing the first candidate set of motion coefficients and the second candidate set of motion coefficients in order to choose one set of motion coefficients to be used to represent motion of the second picture element.

2010/0110303	Look-Ahead System and Method for Pan and Zoom Detection in Video Sequences	APPLE INC.	Dumitras; Adriana | Haskell; Barin G.	348	H04N	20100111	5	94%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.
MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising:selecting a set of frames from a video sequence;determining a set of motion vectors for each frame in the set of frames;determining a motion angle for each motion vector;identifying at least two regions in each frame, wherein a first region includes motion vectors having a first orientation and the second region includes motion vectors having a second orientation;determining percentages of each frame covered by each of the at least two regions;determining a statistical measure of the motion vectors for at least one of the two regions using the look-ahead detector; andcomparing the percentages and statistical measure to threshold values to identify whether the set of frames includes at least one of a pan and a zoom.

7,646,437	Look-ahead system and method for pan and zoom detection in video sequences	Apple Inc.	Dumitras; Adriana | Haskell; Barin G	348	H04N	20030903	3	94%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.
MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising: selecting a set of frames from a video sequence from an image database; determining a set of motion vectors for each frame in the set of frames using a motion analysis block executed by a processor; determining a motion angle for each motion vector using the motion analysis block; identifying at least two largest regions in each frame using a look-ahead detector executed by the processor, wherein the first largest region includes motion vectors with substantially similar motion angles and occupies a largest number of pixels in a frame and the second largest region includes motion vectors with substantially similar motion angles and occupies a second largest number of pixels in a frame; determining percentages of each frame covered by each of the at least two largest regions using the look-ahead detector; determining a statistical measure of the motion angles for at least one of the two largest regions using the look-ahead detector; and comparing the percentages and statistical measure to threshold values to identify at least one of a pan and a zoom in the video sequence using the look-ahead detector.

7,321,700	Producing smooth motion compensated frames by combining multiple interpolation results	Apple Inc.	Souchard; Christophe	382	G06K	20040415	2	93%	☐

Abstract: An interpolation manager constructs multiple motion compensated interpolated frames between two existing frames, and then fuses the multiple interpolated frames into a single output frame. The interpolation manager constructs each of the multiple interpolated frames between the existing frames by selecting a pixel set from each existing frame, generating associated meshes, estimating flow motions in each direction, generating corresponding motion compensated meshes, computing warped images corresponding to each of the existing frames and combining the warped images into an interpolated frame. For each constructed interpolated frame, the interpolation manager uses different classification criteria to select the pixel sets, such that the pixel sets selected for each of the motion compensated interpolated frames vary, and hence the interpolated frames vary as well. The interpolation manager fuses the multiple interpolated frames into a single, output interpolated frame.
MainClaim: A method for robustly producing a motion compensated interpolation video frame, the method comprising: constructing N motion compensated interpolated frames between two existing frames F1 and F2, wherein N comprises an integer with a value of at least 2; and generating a final motion compensated interpolated frame by, for each pixel (x, y) in the final motion compensated interpolated frame: determining one corresponding pixel from each of the N motion compensated interpolated frames, for a total of N corresponding pixels; selecting one pixel of the N corresponding pixels; and setting the pixel (x, y) to the selected pixel.

7,031,389	Method for performing motion estimation in video encoding, a video encoding system and a video encoding device	Nokia Corporation	Guevorkian; David | Launiainen; Aki | Liuha; Petri	375	H04N	20020827	0	100%	☐

Abstract: A current video block of a frame to be encoded comprises a set of first data values, and at least one other video block of another frame comprises a set of second data values. Data value pairs are formed of data values from said set of first data values and equal number of corresponding data values from said set of second data values. A combined comparison value is formed by defining comparison values, each of which is defined by using data values of one data value pair of said data value pairs. Said data value pairs are divided into at least two sub-sets of data value pairs each sub-set comprising equal number of data value pairs. The calculation of the comparison values is interlaced such that the calculation of comparison values of one sub-set of data value pairs is initiated in a time after initiating and before completing the calculation of comparison values of another sub-set of data value pairs.
MainClaim: Method for performing video motion estimation in video encoding, in which a video signal includes video frames, video frames comprise blocks, and a combined comparison value is formed by using a current video block of a frame to be encoded and at least one other video block of another frame, said current video block of the frame to be encoded comprises a set of first data values, said at least one other video block of another frame comprises a set of second data values, data value pairs are formed of data values from said set of first data values and equal number of corresponding data values from said set of second data values, said combined comparison value is formed by defining comparison values, each of which is defined by using data values of one data value pair of said data value pairs, and said data value pairs are divided into at least two sub-sets of data value pairs, each sub-set comprising equal number of data value pairs, wherein the calculation of said comparison values is interlaced such that the calculation of comparison values of one sub-set of data value pairs is initiated in a time after initiating and before completing the calculation of comparison values of another sub-set of data value pairs.

7,492,820	Rate control for video coder employing adaptive linear regression bits modeling	Apple Inc.	Puri; Atul	375	H04N	20040330	4	92%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: A quantizer estimator, comprising: a linear regression unit to generate a quantizer estimate from input values of prior quantizer selections and coding rates, first memory to store predetermined values of quantizer selections and coding rates, the table indexed by a complexity indicator signal, second memory to store quantizer selections and coding rates of previously coded P pictures, and a selector selectively coupling an input to the linear regression unit to the first memory when a picture type signal indicates an I picture and to the second memory when the picture type signal indicates a P picture.

7,453,938	Target bitrate estimator, picture activity and buffer management in rate control for video coder	Apple Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Normile; James | Wu; Hsi-Jung | Nie; Xiaochun | Puri; Atul	375	H04B	20040330	3	92%	☐

Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.
MainClaim: A quantizer selection method, comprising: calculating a normalized average activity level of a picture from

on image information of the picture, adjusting a base quantizer value according to the picture's normalized average activity level, and selecting a quantizer value for the picture based on the adjusted quantizer value, wherein the calculating comprises: for a plurality of macroblocks in the picture, calculating variances of image data for a plurality of blocks therein, from minimum variance levels of the macroblocks, calculating minimum activity levels of the macroblocks, wherein the minimum activity of each macroblock is calculated as: actmin=1+min(blkvar1, blkvar2, blkvar3, blkvar4), where blkvar represents the variances of 8×8 blocks within a respective macroblock, and normalizing the minimum activity levels of the macroblocks, wherein the normalized minimum activity per macroblock is calculated as: ××××××××××.ti- mes.××××× ##EQU00014## where actminavg is a sum of actmin values for all macroblocks in a previously processed picture and the actnorm values for all macroblocks in the picture are averaged to obtain the normalized average activity level of the picture.

6,757,434	Region-of-interest tracking method and device for wavelet-based video coding	Nokia Corporation	Miled; Mohamed Khames Ben Hadj | Chebil; Fehmi	382	G06K	20021112	0	100%	☐

Abstract: A method and device for tracking a region-of-interest in a sequence of image frames, wherein the boundary of the target region of a previous frame is projected onto the current frame so that a search area in the current frame can be established. For every pixel in the search area in the current frame, a search window is established in the previous frame so as to find a matched pixel within the search window. If the matched pixel is within the ROI of the previous frame, then the corresponding pixel in the current frame is preliminarily considered as a pixel within the ROI of the current frame. This backward matching is carried out using a low pass subband in the wavelet domain. The preliminary ROI in the current frame is then refined using edge detection in a high frequency subband.

MainClaim: A method of tracking a target region in an image frame based on a target region of a previous image frame in a sequence of image frames, each of said sequence of image frames comprising a plurality of pixels, said method characterized by:

determining a search area in said image frame based on at least a part of the target region in said previous frame, said search area comprising a plurality of first pixels, each pixel having at least one corresponding first pixel value; and

for the first pixels in the search area:

determining a further search area in said previous frame, said further search area including a plurality of second pixels among the plurality of pixels in the previous frames, each second pixel having at least one corresponding second pixel value and a region status;

finding a match between the first pixel value of said first pixels among the second pixel values for locating a reference second pixel; and

determining the region status of at least one of said first pixels based on the region status of the reference second pixel for determining the target region in said image frame based on the region status of said at least one first pixel.

7,430,335	Pre-processing method and system for data reduction of video sequences and bit rate reduction of compressed video sequences using spatial filtering	Apple Inc	Dumitras; Adriana | Normile; James Oliver | Salsbury; Ryan R.	382	G06K	20030813	3	96%	☐

Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video sequence. Also, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. Pre-processing may include spatial anisotropic diffusion filtering such as Perona-Malik filtering, Fallah-Ford filtering, or omni-directional filtering that extends Perona-Malik filtering to perform filtering in at least one diagonal direction. Pre-processing may also include performing filtering differently on a foreground region than on a background region of a video frame. This method includes identifying pixel locations having pixel values matching characteristics of human skin and determining a bounding shape for each contiguous grouping of matching pixel locations. The foreground region is comprised of pixel locations contained in a bounding shape and the background region is comprised of all other pixel locations.

MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of frames, each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value, the method comprising: a) setting a current frame of the original video sequence; b) identifying a region-of-interest in the current frame; c) specifying a bounding shape that encloses at least a portion of the region-of-interest; and d) filtering pixel locations in the bounding shape differently than other pixel locations in the current frame.

7,403,568	Pre-processing method and system for data reduction of video sequences and bit rate reduction of compressed video sequences using temporal filtering	Apple Inc.	Dumitras; Adriana | Normile; James Oliver | Salsbury; Ryan R.	375	H04N	20030813	3	96%	☐

Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video

sequence. In addition, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. A temporal filtering method is provided for pre-processing of video frames of a video sequence. In the method, pixel values of successive frames are filtered when the difference in the pixel values between the successive frames are within high and low threshold values. The high and low threshold values are determined adaptively depending on the illumination level of a video frame to provide variability of filtering strength depending on the illumination levels of a video frame.
MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of frames, each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value and is identifiable by pixel location coordinates, the method comprising: a) setting a current unencoded frame and a next unencoded frame of the original video sequence; b) computing a statistical value representative of a luminance attribute of the current frame; c) determining a pixel value difference between a pixel value at pixel location coordinates in the next frame and a pixel value at the pixel location coordinates in the current frame; and d) filtering the pixel values at the pixel location coordinates in the current frame and the next frame if the pixel value difference is within a low threshold value and a high threshold value, the low and high threshold values being based on the statistical value.

2008/0085056	Producing Smooth Motion Compensated Frames by Combining Multiple Interpolation Results	APPLE INC.	Souchard; Christophe	382	G06K	20071207	1	94%	☐

Abstract: An interpolation manager constructs multiple motion compensated interpolated frames between two existing frames, and then fuses the multiple interpolated frames into a single output frame. The interpolation manager constructs each of the multiple interpolated frames between the existing frames by selecting a pixel set from each existing frame, generating associated meshes, estimating flow motions in each direction, generating corresponding motion compensated meshes, computing warped images corresponding to each of the existing frames and combining the warped images into an interpolated frame. For each constructed interpolated frame, the interpolation manager uses different classification criteria to select the pixel sets, such that the pixel sets selected for each of the motion compensated interpolated frames vary, and hence the interpolated frames vary as well. The interpolation manager fuses the multiple interpolated frames into a single, output interpolated frame.
MainClaim: A method for producing a video frame, comprising: constructing N interpolated frames between two existing frames F1 and F2, wherein N comprises an integer with a value of at least 2; and generating a final interpolated frame by, for each pixel (x, y) in the final interpolated frame: determining one corresponding pixel from each of the N interpolated frames, for a total of N corresponding pixels; determining, based on the N corresponding pixels, a color; and setting the pixel (x, y) to the determined color.

7,082,450	Implementation of a transform and of a subsequent quantization	Nokia Corporation	Hallapuro; Antti | Simelius; Kim	708	G06F	20010830	0	100%	☐

Abstract: The invention relates to an approximation of a DCT and a quantization which are to be applied subsequently to digital data for compression of this digital data. In order to improve the transform, it is proposed to simplify a predetermined transform matrix to require less operations when applied to digital data. In addition, elements of the simplified transform matrix constituting irrational numbers are approximated by rational numbers. These measures are compensated by extending a predetermined quantization to include the operations which were removed in the simplification of the predetermined transform matrix. The included operations are further adjusted to compensate for the approximation of elements of the simplified transform matrix by rational numbers. If the simplified transform matrix and the extended quantization are used as basis for implementation, a fast transform with a good resulting quality can be achieved. An approximation of an IDCT employed in decompression of compressed digital data can be simplified correspondingly.
MainClaim: A method for implementing an approximation of a discrete cosine transform (DCT) and for implementing a quantization operation, the discrete cosine transform and quantization operation to be applied in sequence to digital data for compression of said digital data, the method comprising: simplifying a predetermined transform matrix to require less operations when applied to digital data, thereby forming a simplified transform matrix; approximating elements of said simplified transform matrix constituting irrational numbers by rational numbers; extending a predetermined quantization operation to include operations removed by simplifying the predetermined transform matrix, thereby forming an extended quantization operation; adjusting the extended quantization operation to compensate for approximation of elements of said simplified transform matrix by rational numbers; and employing said simplified transform matrix with said approximated elements and said extended quantization operation as basis for implementing said sequence of discrete cosine transform and quantization operation.

7,379,956	Encoding and decoding data arrays	Apple Inc.	Kumar; Roger | Handley; Maynard | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	708	G06F	20030430	5	95%	☐

Abstract: Some embodiments of the invention provide a method of performing a Discrete Cosine Transform ("DCT") encoding or decoding coefficients of a data array by (1) multiplying the coefficients by a scalar value before the encoding or decoding, and then (2) dividing the encoded or decoded coefficients by the scalar value. When used in conjunction with fixed-point arithmetic, this method increases the precision of the encoded and decoded results. In addition, some embodiments provide a method of performing a two-dimensional (2D) Inverse Discrete Cosine Transform ("iDCT"). This method splits a pre-multiplication operation of the iDCT into two or more separate stages. When used in conjunction with fixed-point arithmetic, this splitting increases the precision of the decoded results of the iDCT.
MainClaim: A method comprising: decoding an encoded video stream that has been encoded according to a two-dimensional (2D) transform encoding operation that is separable into two one-dimensional (1D) transform operations, the encoded video stream comprising a plurality of encoded values for a plurality of encoded video images, said decoding comprising: parsing encoded values out of the data stream and creating a two-dimensional data array that

stores the encoded values in a particular scan order, wherein the values in the created data array are encoded in both dimensions of the array; multiplying each value in the data array by a scalar value, wherein the data array is an array of data values from a video image; performing a first 1D inverse transform to the data array resulting from the multiplying; transposing the data array resulting from the first 1D inverse transform; performing a second 1D inverse transform to the data array resulting from the transposing; and dividing by the scalar value each value in the data array resulting from the second 1D inverse transform to produce a data array comprising decoded values, the data array comprising decoded values being produced without a second transposing step.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	94%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

6,738,534	Apparatus, and associated method, for altering the resolution of a digital image	Nokia Corporation	Ridge; Justin | Coulombe; Stephane	382	G06K	20020131	0	100%	☐

Abstract: Apparatus, and an associated method, for reducing the resolution of a digital image, such as a JPEG image. The digital image is pre-scaled by a pre-scaling factor that is selected such that a matrix multiplication is performed upon the digital image once pre-scaled, to reduce the resolution of the image. The matrix multiplication utilizes a multiplier that exhibits symmetry, thereby to reduce the number of calculations required to reduce the resolution of the image. Resolution reduction is performed, for instance, prior to communicating the digital image to a mobile station operable in a mobile communication system.
MainClaim: In a device for operating upon a coefficient block-based digital image that exhibits an initial resolution, the coefficient block-based digital image defining at least a first block of transform coefficients of a first dimension, an improvement of apparatus for selectively reducing the initial resolution exhibited by the coefficient block-based digital image to a first-reduced resolution, said apparatus comprising:

a prescaler coupled to receive indications of each block of transform coefficients that together define the coefficient block-based digital image, said prescaler for scaling the indications of each block of transform coefficients of the coefficient block-based digital image to form a first scaled variant representation of each block of transform coefficients of the coefficient block-based digital image;

a combiner coupled to receive the scaled variant representation of each block of transform coefficients of the coefficient block-based digital image, said combiner for combining the scaled variant representation of each block of transform coefficients together to form a combined representation of the scaled variant representation of each block of transform coefficients of the coefficient block-based digital image; and

a reducer coupled to receive the combined representation formed by said combiner, said reducer performing a matrix multiplication operation by a multiplier upon the combined representation, the multiplier forming a symmetric matrix having rows and columns that are divisible into pairs, said reducer for reducing the combined representation in resolution to a reduced-resolution representation of the combined representation of the first-reduced resolution.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	92%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method

comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

6,697,521	Method and system for achieving coding gains in wavelet-based image codecs	Nokia Mobile Phones Ltd.	Islam; Asad | Chebil; Fehmi	382	G06K	20010615	0	100%	☐

Abstract: A method and system for coding a RGB image in an encoder and a decoder. In the encoder, the RGB image components are converted into YUV components. One or more of the lower bit-planes of YUV components are eliminated before the YUV components are transformed by forward wavelet transform and coded into a codestream for transmission. In the decoder, the codestream is decoded and transformed by inverse wavelet transform into a set of reconstructed YUV components. The bit-planes of these reconstructed YUV components are up-shifted so that the up-shifted YUV components are structurally equivalent to the original YUV components before they are adjusted in the encoder. However, the lower bit-planes that come into being due to the up-shifting are all set to zero. The up-shifted YUV components are then converted into the RGB component of the reconstructed image.
MainClaim: A method of encoding an image separated into a plurality of first color components of a first color space, wherein the first color components are converted into a plurality of second color components of a second color space different from the first color space, each of the second color components having a number of more-significant bit-planes and a first number of less-significant bit-planes, said encoding method comprising the steps of:

adjusting the second color components by changing the first number of less-significant bit-planes of at least one of the second color components to a second number smaller than the first number;

transforming the adjusted second color components based on a forward wavelet transformation for providing transformed image data; and

coding the transformed image data for forming a bitstream indicative of the transformed image data.

7,379,956	Encoding and decoding data arrays	Apple Inc.	Kumar; Roger | Handley; Maynard | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	708	G06F	20030430	5	93%	☐

Abstract: Some embodiments of the invention provide a method of performing a Discrete Cosine Transform ("DCT") encoding or decoding coefficients of a data array by (1) multiplying the coefficients by a scalar value before the encoding or decoding, and then (2) dividing the encoded or decoded coefficients by the scalar value. When used in conjunction with fixed-point arithmetic, this method increases the precision of the encoded and decoded results. In addition, some embodiments provide a method of performing a two-dimensional (2D) Inverse Discrete Cosine Transform ("iDCT"). This method splits a pre-multiplication operation of the iDCT into two or more separate stages. When used in conjunction with fixed-point arithmetic, this splitting increases the precision of the decoded results of the iDCT.
MainClaim: A method comprising: decoding an encoded video stream that has been encoded according to a two-dimensional (2D) transform encoding operation that is separable into two one-dimensional (1D) transform operations, the encoded video stream comprising a plurality of encoded values for a plurality of encoded video images, said decoding comprising: parsing encoded values out of the data stream and creating a two-dimensional data array that stores the encoded values in a particular scan order, wherein the values in the created data array are encoded in both dimensions of the array; multiplying each value in the data array by a scalar value, wherein the data array is an array of data values from a video image; performing a first 1D inverse transform to the data array resulting from the multiplying; transposing the data array resulting from the first 1D inverse transform; performing a second 1D inverse transform to the data array resulting from the transposing; and dividing by the scalar value each value in the data array resulting from the second 1D inverse transform to produce a data array comprising decoded values, the data array comprising decoded values being produced without a second transposing step.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard | Kumar; Roger | Pun; Thomas | Nie; Xiaochun | Wu; Hsi-Jung	382	G06K	20030430	8	92%	☐

Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.
MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

7,116,714	Video coding	Nokia Corporation	Hannuksela; Miska	375	H04N	20010809	0	100%	☐

Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising encoding a first picture (or segment of a picture) of the sequence without reference to another picture of the sequence to produce a picture (10) and encoding said first picture (or segment of a picture) with reference to another picture (14) of the sequence to produce a corresponding temporally predicted picture (P4) or segment of a picture.
MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising receiving a first picture or a part thereof, encoding the first picture or said part thereof, using a first encoding mode, without reference to another picture of the sequence to form a first encoded representation of the first picture or said part thereof, and encoding said first picture or said part thereof, using a second encoding mode, with reference to another picture of the sequence to produce a corresponding temporally predicted second encoded representation of the first picture or said part thereof.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	97%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

2009/0022225	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	5	97%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the

system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

6,526,096	Video coding system for estimating a motion vector field by using a series of motion estimators of varying complexity	Nokia Mobile Phones Limited	Lainema; Jani | Karczewicz; Marta | Oktem; Levent	375	H04N	19970919	0	100%	☐

Abstract: A motion estimation system for a video coder has an input for a video image to be coded, and includes a series of motion estimators of varying complexity for estimating a motion vector field between a received image and a reference image. The estimation is accomplished by sequential use of the estimators, wherein a subsequent estimator of the sequence is selected by a controller based on a prediction error, associated with the motion vector field estimated by a currently selected estimator, exceeding a predetermined threshold.
MainClaim: (Three times amended) A motion estimation system for a video coder comprising:

means for receiving a video frame to be coded;

a series of motion estimators of varying complexity for estimating a motion vector field between the received frame and a reference frame; and

control means for selecting successive ones of said estimators, individually, beginning with an estimator of said series having a lesser complexity and progressing toward an estimator of said series having a greater complexity, said control means being operative to select a subsequent motion estimator in the series only if a prediction error associated with the motion vector field estimated by a currently selected motion estimator exceeds a predetermined threshold;

wherein said series of motion estimators is drawn from a group of motion estimators including: a motion estimator comprising a minimizer, a motion estimator comprising a zero motion model, a motion estimator comprising a translational motion model which is more complex than the motion estimator comprising the zero motion model, a motion estimator comprising an affine motion model which is more complex than the motion estimator comprising the translational motion model, and a motion estimator comprising a quadratic motion model which is more complex than the motion estimator comprising the affine motion model.

2010/0110303	Look-Ahead System and Method for Pan and Zoom Detection in Video Sequences	APPLE INC.	Dumitras; Adriana | Haskell; Barin G.	348	H04N	20100111	5	93%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.
MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising:selecting a set of frames from a video sequence;determining a set of motion vectors for each frame in the set of frames;determining a motion angle for each motion vector;identifying at least two regions in each frame, wherein a first region includes motion vectors having a first orientation and the second region includes motion vectors having a second orientation;determining percentages of each frame covered by each of the at least two regions;determining a statistical measure of the motion vectors for at least one of the two regions using the look-ahead detector; andcomparing the percentages and statistical measure to threshold values to identify whether the set of frames includes at least one of a pan and a zoom.

7,646,437	Look-ahead system and method for pan and zoom detection in video sequences	Apple Inc.	Dumitras; Adriana | Haskell; Barin G	348	H04N	20030903	3	93%	☐

Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.
MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising: selecting a set of frames from a video sequence from an image database; determining a set of motion vectors for each frame in the set of frames using a motion analysis block executed by a processor; determining a motion angle for each motion vector using the motion analysis block; identifying at least two largest regions in each frame using a look-ahead detector executed by the processor, wherein the first largest region includes motion vectors with substantially similar motion angles and occupies a largest number of pixels in a frame and the second largest region includes motion vectors with substantially similar motion angles and occupies a second largest number of pixels in a frame; determining percentages of each frame covered by each of the at least two largest regions using the look-ahead detector; determining a statistical measure of the motion angles for at least one of the two largest regions using the look-ahead detector; and comparing the percentages and statistical measure to threshold values to identify at least one of a pan and a zoom in the video sequence using the look-ahead detector.

7,321,700	Producing smooth motion compensated frames by combining multiple interpolation results	Apple Inc.	Souchard; Christophe	382	G06K	20040415	2	92%	☐

Abstract: An interpolation manager constructs multiple motion compensated interpolated frames between two existing frames, and then fuses the multiple interpolated frames into a single output frame. The interpolation manager constructs each of the multiple interpolated frames between the existing frames by selecting a pixel set from each existing frame, generating associated meshes, estimating flow motions in each direction, generating corresponding motion compensated meshes, computing warped images corresponding to each of the existing frames and combining the warped images into an interpolated frame. For each constructed interpolated frame, the interpolation manager uses different classification criteria to select the pixel sets, such that the pixel sets selected for each of the motion compensated interpolated frames vary, and hence the interpolated frames vary as well. The interpolation manager fuses the multiple interpolated frames into a single, output interpolated frame.
MainClaim: A method for robustly producing a motion compensated interpolation video frame, the method comprising: constructing N motion compensated interpolated frames between two existing frames F1 and F2, wherein N comprises an integer with a value of at least 2; and generating a final motion compensated interpolated frame by, for each pixel (x, y) in the final motion compensated interpolated frame: determining one corresponding pixel from each of the N motion compensated interpolated frames, for a total of N corresponding pixels; selecting one pixel of the N corresponding pixels; and setting the pixel (x, y) to the selected pixel.

7,715,638	Processing of images using a limited number of bits	Nokia Corporation	Kalevo; Ossi	382	G06K	20040112	0	100%	☐

Abstract: The invention relates to a method as well as a system, a device, an encoder and a decoder, and a computer software product for image processing by the method. In the invention, the number of bits is limited in the bit string of a pixel to be processed, wherein the pixel is encoded with the limited number of bits. A prediction value corresponding to said pixel is searched for. If it is found, the difference between the pixel and the prediction value is determined, to select the method for encoding the bit string of said pixel. Also, a code word is encoded in the bit string, to indicate the selected encoding method. If the prediction value is missing, the number of bits in said pixel is limited by quantizing. By means of the invention, a fixed number of bits is obtained for all encoded pixels in an image.
MainClaim: A method for image processing, in which the number of bits is fixed in an encoded bit string, wherein a pixel is encoded into the bit string, the method comprising: if a prediction value is not available for the pixel, encoding a quantized pixel value to the bit string, if the prediction value is available for the pixel, determining a difference between the pixel value and the prediction value, which difference is used for selecting a method for encoding among more than two encoding methods to encode said pixel into the bit string, each method for encoding having a certain step size for quantizing a value, and said certain step size being different in each method for encoding, wherein the method further comprising; determining a code word indicating the selected encoding method on the basis of the original and limited number of bits in the pixel in such a way that the code word length does not exceed N-(M-1) where M corresponds to the limited number of bits and N corresponds to the original number of bits; encoding said code word indicating the selected encoding method and the quantizer step size, and the quantized value to the bit string, in which method the bit string has a fixed-length smaller than the length of the originally digitized pixel for each encoded pixels in the image.

2009/0103608	METHOD AND SYSTEM FOR ENTROPY CODING	APPLE INC.	LIN; Ken Kengkuan | OSLICK; Mitchell Howard	375	H04N	20081230	2	94%	☐

Abstract: A method and system are provided for encoding a plurality of integers with variable-length code tables constructed by combining a plurality of structured code tables. Each code table has an associated set of integer values; the sets are disjoint and exhaustive, so that every integer appears in exactly one set. An integer is encoded using the codebook associated with the set in which the integer appears.
MainClaim: (canceled)

7,486,211	Method and system for entropy coding	Apple Inc.	Lin; Ken Kengkuan | Oslick; Mitchell Howard	341	H03M	20070413	2	94%	☐

Abstract: A method and system are provided for encoding a plurality of integers with variable-length code tables constructed by combining a plurality of structured code tables. Each code table has an associated set of integer values; the sets are disjoint and exhaustive, so that every integer appears in exactly one set. An integer is encoded using the codebook associated with the set in which the integer appears.
MainClaim: A method for encoding a plurality of integers with variable-length code tables, comprising: if an integer is within a first set of integers having a value less than a predetermined threshold value, outputting the integer encoded according to a Golomb-Rice code table associated with the first set of integers; and if the integer is within a second set of integers having a value greater than or equal to the predetermined threshold value, outputting the integer encoded according to an exponential Golomb code table associated with the second set of integers.

2008/0253460	METHOD AND SYSTEM FOR ENTROPY CODING	APPLE INC.	LIN; Ken Kengkuan | OSLICK; Mitchell Howard	375	H03M	20070413	2	94%	☐

Abstract: A method and system are provided for encoding a plurality of integers with variable-length code tables constructed by combining a plurality of structured code tables. Each code table has an associated set of integer values; the sets are disjoint and exhaustive, so that every integer appears in exactly one set. An integer is encoded using the codebook associated with the set in which the integer appears.
MainClaim: A method for encoding a plurality of integers with variable-length code tables, comprising:if an integer is within a first set of integers having ci a value less than a predetermined threshold value, outputting the integer encoded

according to a Golomb-Rice code table associated with the first set of integers; andif the integer is within a second set of integers having a value greater than or equal to the predetermined threshold value, outputting the integer encoded according to an exponential Golomb code table associated with the second set of integers.

7,006,576	Video coding	Nokia Mobile Phones Limited	Hannuksela; Miska	375	H04N	20000719	0	100%	☐

Abstract: A method of video encoding including: receiving a video signal to be coded; coding data representing a frame of said video signal; and repeating part, but not all, of the data. The repeated part including the picture header for the frame. A method of decoding an encoded video signal including receiving coded data representing frames of a video signal; examining the coded data to detect header data and picture data; when an error in the picture header is detected, storing the picture data in a temporary picture data store, detecting a repeat of the header data; and decoding the stored picture data using the repeated header data.
MainClaim: A method of decoding a compression encoded video signal, the method comprising:

receiving compression encoded data representative of a first frame of a video signal; and

examining said compression encoded data representative of the first frame to detect picture header data and picture data; and wherein

when an error in the picture header data of the first frame is detected, storing the picture data of the first frame in a temporary picture data store, receiving compression encoded data subsequent to the first frame, detecting a repeat of the picture header data of the first frame from within the compression encoded data subsequent to the first frame, and decoding the stored picture data using the repeated picture header data.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	96%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	95%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

7,088,776	Method and apparatus for variable accuracy inter-picture timing specification for	Apple Computer, Inc.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana	375	H04B	20021108	1	95%	☐

	digital video encoding		| Puri; Atul						

Abstract: A method and apparatus for variable accuracy inter-picture timing specification for digital video encoding is disclosed. Specifically, the present invention discloses a system that allows the relative timing of nearby video pictures to be encoded in a very efficient manner. In one embodiment, the display time difference between a current video picture and a nearby video picture is determined. The display time difference is then encoded into a digital representation of the video picture. In a preferred embodiment, the nearby video picture is the most recently transmitted stored picture. For coding efficiency, the display time difference may be encoded using a variable length coding system or arithmetic coding. In an alternate embodiment, the display time difference is encoded as a power of two to reduce the number of bits transmitted.
MainClaim: A method of specifying digital video information, said method comprising: determining a first display time difference between a first video picture and a nearby video picture; and encoding said first video picture and said first display time difference into a first digitally encoded video picture, wherein said first display time difference is encoded more than once in said first digitally encoded video picture.

7,617,436	Method, device, and system for forward channel error recovery in video sequence transmission over packet-based network	Nokia Corporation	Wenger; Stephan | Hannuksela; Miska | Bouazizi; Imed	714	H03M	20050802	0	100%	☐

Abstract: Accelerated video decoding makes use of FEC-repaired media packets that become available through FEC decoding later than their intended decoding time, so to re-establish the integrity of the prediction chain between predicted pictures. The decoder state may be stored at the time of reception of an erroneous packet or at the time of identification of a lost packet, and decoding continued. After FEC repair, the last known state of the decoder is restored after the lost/damaged packet(s) is (are) resurrected through FEC, and accelerated decoding accordingly is used. Cycles "reserved" for decoding of a sub-sequence may be utilized. By freezing the decoded frame at the begin of a sub-sequence and decoding coded pictures of the main sequence that are part of the previous FEC block the integrity of the main prediction chain may be established again. Alternatively, cycles from enhancement layer decoding may be used.
MainClaim: Device, comprising: a network interface for receiving one or more video data packets of an error recovery block of a video sequence transmission and one or more repair data packets associated with said error recovery block; a repair buffer for storing said one or more received video data packets of said error recovery block and said one or more received repair data packets associated with said error recovery block; an error recovery decoder for checking said stored video data packets for loss or data error, and for generating repaired video data packets on the basis of said stored video data packets and repair data packets of error recovery block, to which any lost or erroneous video data packets belong, when at least a mathematically sufficient number of said stored video data packets and repair packets are available at said repair buffer for successful error recovery; a video decoder for decoding, out of synchronicity with an original frame time sequence of said video sequence, at least said repaired video data packets supplied by said error recovery decoder; and a decoder state buffer, when triggered by said error recovery decoder detecting lost or erroneous video data packets, for storing a decoder state of said video decoder and, when receiving a restore signal from said error recovery decoder for restoring said decoder state of said video decoder.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	96%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2009/0180545	HYPOTHETICAL REFERENCE DECODER	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin | NORMILE; James Oliver	375	H04N	20080111	2	94%	☐

Abstract: Disclosed is a system and method of controlling a video decoder, including a reviewing channel data

representing coded video data generated by an encoder to identify parameters of a hypothetical reference decoder (HRD) used by the encoder during coding operations. A parameter representing an exit data rate requirement of a coded picture buffer (CPB) of the HRD is compared against exit rate performance of the video decoder. If the exit rate performance of the video coder matches the exit rate requirement of the HRD, the coded video data is decoded, otherwise, a certain decoding degradation scheme can be applied, including disabling decoder from decoding the coded video data.

MainClaim: A method of controlling a video decoder, comprising:monitoring channel data representing coded video data generated by an encoder to identify parameters of a hypothetical reference decoder (HRD) used by the encoder during coding operations, andcomparing a parameter representing an exit data rate requirement of a coded picture buffer (CPB) of the HRD against exit rate performance of the video decoder,if the exit rate performance of the video decoder matches the exit rate requirement of the HRD, decoding the coded video data,otherwise, apply a degradation scheme, including disabling the video decoder from decoding the coded video data.

2008/0181298	HYBRID SCALABLE CODING	APPLE COMPUTER, INC.	Shi; Xiaojin | Wu; Hsi-Jung | Normile; James Oliver	375	H04N	20070126	4	94%	☐

Abstract: Systems, apparatuses and methods whereby coded bitstreams are delivered to downstream end-user devices having various performance capabilities. A head-end encoder/video store generates a primary coded bitstream and metadata for delivery to an intermediate re-encoding system. The re-encoding system recodes the primary coded bitstream to generate secondary coded bitstreams based on coding parameters in the metadata. Each secondary coded bitstream is matched to a conformance point of a downstream end-user device. Coding parameters for each conformance point can be derived from the head-end encoder encoding original source video to generate the secondary coded bitstreams and extracting information from the coding process/results. The metadata can then can be communicated as part of the primary coded bitstream (e.g., as SEI) or can be communicated separately. As a result, the complexity of the secondary coded bitstream is appropriately scaled to match the capabilities of the downstream end-user device to which it is delivered.

MainClaim: A scalable encoding method, comprising:encoding source video according to a primary coding profile to generate a primary coded bitstream;encoding the source video according to a plurality of secondary coding profiles to generate a plurality of corresponding secondary coded bitstreams; andderiving metadata based on generation of the plurality of secondary coded bitstreams;wherein the metadata comprises coding parameters to recode the primary coded bitstream to regenerate the plurality of secondary coded bitstreams.

7,436,886	Coding scene transitions in video coding	Nokia Corporation	Hannuksela; Miska	375	H04N	20030122	0	100%	☐

Abstract: A method of generating a scene transition in a video sequence between a first and a second scene. One of the scenes comprises independently decodable video frames coded according to a first frame format, and video frames coded according to a second frame format, one of the video frames according to the second frame format being predicted from one other video frame. The presentation time of one video frame of the first scene is determined to be equal to that of one scene transition video frame of the second scene during the scene transition. Scene transition information is determined for one video frame of one scene for generating a scene transition with a decoder. One scene transition video frame of the first scene, one scene transition video frame of the second scene, and the scene transition information are coded in the encoder into the video sequence.

MainClaim: A method of generating a scene transition in a video sequence between at least a first and a second scene, the first scene being an ending scene and the second scene a beginning scene, at least one of said scenes comprising independently decodable video frames coded in accordance with at least a first frame format, and video frames coded in accordance with a second frame format, at least one of the video frames according to the second frame format being predicted from at least one other video frame, the method comprising determining that the duration of the presentation time of at least one whole video frame of the first scene is equal to the duration of the presentation time of at least one whole video frame of the second scene during the scene transition, said video frames being scene transition video frames, determining scene transition information for at least one video frame of at least one scene for generating a scene transition with a decoder, coding at least said one scene transition video frame of the first scene and at least said one scene transition video frame of the second scene in the encoder into the video sequence such that at least the scene transition video frames of at least the first and second scenes are placed onto different scalability layers in the video sequence, and coding said scene transition information in the encoder into the video sequence.

2009/0022225	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	5	95%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.

MainClaim: (canceled)

2007/0286282	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	Haskell; Barin Geoffry | Singer; David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	95%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

2009/0022224	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	HASKELL; Barin Geoffry | SINGER; David William | DUMITRAS; Adriana | PURI; Atul	375	H04N	20070718	7	95%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is preformed by simple shifts.
MainClaim: (canceled)

6,741,648	Apparatus, and associated method, for selecting an encoding rate by which to encode video frames of a video sequence	Nokia Corporation	Karczewicz; Marta | Varsa; Viktor | Srinivas; Bindignavile	375	H04N	20010427	0	100%	☐

Abstract: Apparatus, and an associated method, for selecting the encoding bit rate at which an encoder encodes selected video frames of a sequence of video frames at a video sending device. Selection is made to provide a constant-consistency quality level and constant frame rate of display of the video frames at a video receiving device. Selection of the encoding bit rate is made responsive to a targeted frame rate and allowable communication rates upon a communication channel upon which encoded representations of the video frames are to be communicated.
MainClaim: In a video device operable in a communication system to send representations of a sequence of video frames upon a communication channel, an improvement of apparatus for selecting a frame bit-rate encoding value at which to encode at least selected ones of the video frames of the sequence of video frames, said apparatus comprising:

a rate controller coupled to receive indications of a target frame rate representative of a targeted frame rate at which the representations of the video frames of the sequence of video frames are to be communicated upon the communication channel and indications of a communication channel capacity rate of permissible communication rates upon the communication channel, said rate controller operable responsive thereto for determining the frame bit-rate encoding value at which to encode the selected ones of the video frames of the sequence, the frame bit-rate encoding value of a level to permit the representations of the sequence to be communicated at the communication channel capacity rate and said rate controller for selecting which video frames of the sequence of video frames form the at least selected ones of the video frames to be encoded at the frame bit-rate encoding value, the video frames selected by said rate controller positioned at periodic spacings in the sequence of video frames.

7,418,037	Method of performing rate control for a compression system	Apple Inc.	Nie; Xiaochun | Pun; Thomas | Kumar; Roger | Wu; Hsi-Jung	375	H04N	20030430	2	97%	☐

Abstract: A rate controller for allocating a bit budget for video frames to be encoded is disclosed. The rate controller of the present invention considers many different factors when determining the frame bit budget including: desired video quality, target bit rate, frame type (intra-frame or inter-frame), frame duration, intra-frame frequency, frame complexity, intra-block frequency within an intra-frame, buffer overflow, buffer underflow, and the encoded video frame quality for a possible second pass.
MainClaim: A method of encoding digital video information into a bit stream, said method comprising: determining a default bit budget for a video frame to be digitally encoded into said bit stream; examining a plurality of factors related to said video frame or said bit stream; adjusting said default bit budget according to said plurality of factors to generate an adjusted target bit budget for said video frame, wherein said adjusted target bit budget is based upon an average frame display duration comprising an historical average frame display duration; and using said adjusted target bit budget to encode the video frame.

2006/0233237	Single pass constrained constant bit-rate encoding	APPLE COMPUTER, INC.	Lu; Jian | Jiang; Wenqing | Wallace; Gregory Kent	375	H04N	20050415	3	97%	☐

Abstract: Data, such as video data, is encoded by identifying a data segment to be encoded. The data segment includes multiple frames. A bit-rate profile for encoding the data segment is generated. The bit-rate profile defines a number of bits associated with each frame in the data segment. Frames are encoded using the bit-rate profile. The bit-rate profile is updated periodically to incorporate past encoding statistics and compensate for any encoding bits deviations from the initial profile.
MainClaim: A method for encoding data, the method comprising: identifying a data segment to be encoded, the data segment including a plurality of frames; generating a bit-rate profile for encoding the data segment, the bit-rate profile defining a number of bits associated with each frame in the data segment; and encoding frames in the data segment using the bit-rate profile.

2007/0116126	Multipass video encoding and rate control using subsampling of frames	Apple Computer, Inc.	Haskell; Barin Geoffry | Dumitras; Adriana | Wu; Hsi-Jung | Tong; Xin | Pun; Thomas	375	H04N	20060321	4	95%	☐

Abstract: An encoder includes an encoder engine, a storage device and a controller to implement an iterative coding process. The encoder engine compresses a selected portion of a data sequence. The storage device stores the compressed portion of the data sequence after each iteration. The controller selects the portion of the data sequence to compress for each iteration. The controller gathers statistics from the compressed portion of the data sequence. The gathered statistics include statistics generated by the selected frames and statistics extrapolated from the selected frames for the non-selected frames. The controller adjusts coding parameters of the encoder engine on each iteration until the gathered statistics meet a specified performance requirement.
MainClaim: A method of coding a video sequence according to an iterative coding process, comprising: subsampling frames from the video sequence on a first iteration and any intermediate iterations of the coding process; coding the subsampled frames according to adjustable coding parameters; generating statistics for the video sequence based on statistics generated by the coding for frames included therein and based on extrapolated statistics for frames excluded from the coding; if the statistics of the video sequence do not meet a specified requirement, modifying the adjustable coding parameters for a next iteration of the coding process; and coding the non-subsampled frames on a last iteration of the coding process to produce a complete coded video sequence.

7,277,849	Efficiency improvements in scalable audio coding	Nokia Corporation	Streich; Sebastian | Vilermo; Miikka	704	G10L	20030312	0	100%	☐

Abstract: An audio encoding method of coding audio signals into a layered data stream having a first layer and a second layer is presented. The second layer serves as an enhancement of the first layer. The method involves forming an original digital audio signal, encoding the original signal to obtain a first layer signal, producing a residual signal to reflect a difference between the original signal and the first layer signal, selecting either the original signal or the residual signal for encoding, and producing a second layer signal by encoding the selected signal. Moreover, the residual signal is evaluated and, in case the result of the evaluation meets given criteria, a predetermined low-entropy signal is selected to be encoded as the second layer signal, instead of the original signal or the residual signal.
MainClaim: An audio encoding method of coding audio signals into a layered data stream having a first layer and a second layer, said second layer serving as an enhancement of said first layer, the method comprising forming an original digital audio signal, encoding said original signal to obtain a first layer signal, producing a residual signal to reflect a difference between the original signal and the first layer signal, evaluating the residual signal; and, in case the result of the evaluation meets given criteria, selecting a predetermined low-entropy signal to be encoded as a second layer signal, and, otherwise, selecting either said original signal or said residual signal to be encoded as said second layer signal, and producing said second layer signal by encoding said selected signal.

2009/0170435	DATA FORMAT CONVERSION FOR BLUETOOTH-ENABLED DEVICES	APPLE INC.	Bush; Jeff	455	H04B	20081230	2	92%	☐

Abstract: Format converters and methods of performing data format conversion are provided. The format converters may convert compressed data into a different compressed format that is compatible with the Bluetooth transmission standard. The format converter may decompose the compressed data into frequency domain data streams of different frequency sub-bands. The format converter may transform each data stream of frequency domain information from a first encoding scheme to a second encoding scheme, and may then quantize the transformed data steams based on bit allocation information for each sub-band. The format converters may also include a bit allocation component which computes the bit allocation information for each sub-band based on an unfiltered version of the compressed data.

MainClaim: A format converter for performing format conversion on frequency domain information having a first encoding format, wherein the frequency domain information is contained within a frequency band, the format converter comprising:a band separation module configured to decompose an unfiltered version of the frequency domain information into a plurality of data streams, wherein each of the data streams is associated with a distinct sub-band of the frequency band;a bit allocation unit configured to compute bit allocation information for each of the sub-bands using the unfiltered version of the frequency domain information;a plurality of conversion modules each configured to transform one of the data streams from the first encoding format to a second encoding format; anda plurality of quantizers, wherein each of the quantizers is configured to quantize one of the transformed data streams based on the bit allocation information for an associated sub-band.

7,724,818	Method for coding sequences of pictures	Nokia Corporation	Hannuksela; Miska | Wang; Ye-Kui	375	H04N	20030430	0	100%	☐

Abstract: A method for encoding sequences of pictures into a bitstream, wherein parameters are defined in a parameter set and each picture comprises information of one or more slices. The method comprises defining parameters in a sequence parameter set; defining parameters in a picture parameter set; and defining at least one picture parameter in a slice header. The picture parameter remains unchanged at least in all slice headers of one picture.
MainClaim: A method for encoding sequences of pictures into a bitstream, wherein parameters are defined in a parameter set and each picture comprises information of one or more slices, the method comprising: defining, in an encoder, parameter values in a sequence parameter set for a sequence of pictures; defining, in the encoder, parameter values in a picture parameter set for a picture; and defining, in the encoder, at least one picture parameter value in a slice header, the picture parameter value remaining unchanged at least in all slice headers of one picture.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	97%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2009/0180533	CONTROL OF VIDEO DECODER FOR REVERSE PLAYBACK OPERATION	Apple Inc.	Bushell; John Samuel	375	H04B	20080111	3	96%	☐

Abstract: A video decoder includes a mode of operation for reverse playback that includes dividing a sequence of coded video data into groups of pictures (GOPs) and further subdividing the groups of pictures into a plurality of spans. GOPs extend in coding order from a first key frame to a terminal frame that precedes another key frame in coding order. Each span is processed in reverse coding order by decoding the first key frame and any reference frames that precede the currently processed span in coding order, selecting a plurality of frames from the currently processed span for decode and display and further selecting for decode but not display any reference frames from the currently processed span that were omitted by the first selection. All selected frames are decoded but only those marked for display are rendered at a display device. The method accommodates control parameters that define the number of spans selected from each GOP and the number of frames selected from each span for decoded and display. Via these control parameters, operation of the method may be tuned to local decoding environments for which processing resources and decoded picture buffer sizes may be unknown.
MainClaim: A decoding method for coded video data, comprising:dividing a group of pictures into a plurality of spans, the coded video data representing frames of source video coded in a coding order, the group of pictures extending in coding order from a first key frame to a terminal frame that precedes another key frame in coding order,processing each span in reverse coding order, comprising:a) decoding the first key frame and any reference frames that precede the currently processed span in coding order,b) selecting a plurality of frames from the currently processed span for decode and display,c) selecting any reference frames from the currently processed span that are omitted by the selection of step b) for decode but not display, andd) decoding the frames selected by steps b) and c);displaying in reverse display order the decoded frames selected for display.

	METHOD AND APPARATUS FOR VARIABLE ACCURACY INTER-PICTURE TIMING		Haskell; Barin Geoffry | Singer;						

2007/0286282	SPECIFICATION FOR DIGITAL VIDEO ENCODING WITH REDUCED REQUIREMENTS FOR DIVISION OPERATIONS	APPLE INC.	David William | Dumitras; Adriana | Puri; Atul	375	H04N	20070718	10	95%	☐

Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.
MainClaim: (canceled)

7,106,908	Method and apparatus for selecting a format in which to re-encode a quantized image	Nokia Corporation	Ridge; Justin	382	G06K	20020312	0	100%	☐

Abstract: An apparatus and corresponding method (10) for reencoding an input image already encoded in some format in order to provide a possibly more suitable encoding, based on whether the input image is determined by the system to be a graphic image (i.e. an artificial image) or a natural image (i.e. for example photographs of real world objects). The invention uses a decision function (f) having some predetermined parameters (α,β,.lamda.) that are constant or are changed only occasionally so as to refine their values, and also uses some inputs (c,r,d) that correlate in some way with the naturalness of an image and are determined by analyzing the input image using several analyzer modules (11a 11b 11c). The value of the decision function (f) is compared to a threshold, or two various thresholds in a table (12c) of thresholds versus predetermined formats, to decide on what format to use to reencode the image.
MainClaim: A method (10) for selecting a format in which to re-encode an input formatted image, the method characterized by: an analysis step (11) of analyzing the input formatted image to provide information indicating whether characteristics of the input formatted image correspond to a natural image or to a graphic image; and a decision step (12) of deciding on and providing which format from among at least two predetermined formats to use to re-encode the input formatted image, based on the information indicating whether characteristics of the input formatted image correspond more to a natural image or more to a graphic image.

6,798,918	System and method using edge processing to remove blocking artifacts from decompressed images	Apple Computer, Inc.	Chu; Ke-Chiang | Lu; Jian | Tian; Yu Tina | Wu; Hsi-Jung	382	G06K	20020417	1	93%	☐

Abstract: A system and method using edge processing to remove blocking artifacts comprises an edge processor having an image converter for building an edge representation of a received image, a statistics analyzer for compiling a histogram containing edge intensities of the edge representation, a reference calculator for using the histogram to compute reference values corresponding to the blocking artifacts and an artifact remover for identifying and removing the blocking artifacts using the computed reference values.
MainClaim: A method for processing an image, the method comprising:

determining artifact intensities within the image, wherein the artifact intensities indicate edge intensities within the image;

compiling, from the artifact intensities within the image, a distribution of number of occurrences for a plurality of artifact intensity levels at a plurality of locations in the image;

identifying artifacts from the distribution and the artifact intensities within the image; and

deleting the artifacts from the image.

7,092,580	System and method using edge processing to remove blocking artifacts from decompressed images	Apple Computer, Inc.	Chu; Ke-Chiang | Lu; Jian | Tian; Yu Tina | Wu; Hsi-Jung	382	G06K	20040517	1	92%	☐

Abstract: A system and method using edge processing to remove blocking artifacts comprises an edge processor having an image converter for building an edge representation of a received image, a statistics analyzer for compiling a histogram containing edge intensities of the edge representation, a reference calculator for using the histogram to compute reference values corresponding to the blocking artifacts and an artifact remover for identifying and removing the blocking artifacts using the computed reference values.
MainClaim: A processor to remove selected artifacts from an image, the processor comprising: an image converter to create a representation of said image, said representation to show artifact intensities within said image; a statistics

analyzer coupled to said image converter to create a statistical data set of artifact intensities for a selected portion of artifacts of said image, the selected portion of the artifacts being at selected locations within said image; and an artifact remover coupled to said statistics analyzer to identify and delete said selected artifacts from said selected locations of said image according to said statistical data set.

7,403,660	Encoding picture arrangement parameter in picture bitstream	Nokia Corporation	Hannuksela; Miska	382	G06K	20030430	0	100%	☐

Abstract: Encoded pictures comprise one or more independently decodable frames, reference frames, and predicted frames. In the method an arrangement step is performed for arranging the pictures in an encoding order, and information on the presentation order is defined for the encoded pictures. Further in the method, a transmission step is performed for transmitting said encoded pictures to a decoder, a decoding step for decoding the encoded pictures for forming decoded pictures, and rearranging step for arranging the decoded pictures in presentation order. An expected increment value of the presentation order per picture is defined, and a parameter indicative of the difference between the expected increment value and the real increment value is calculated. The calculated parameter is VLC coded, and the VLC coded parameter is transmitted, wherein the VLC coded parameter is used in the decoder for arranging the decoded pictures in correct presentation order.
MainClaim: A method for encoding pictures into a bitstream, comprising: defining a first value for use at a decoding phase to arrange decoded encoded pictures; defining, based on a frame number, a second value indicating an expected value of the first value, the frame number being indicative of a decoding order of encoded pictures; calculating at least one parameter indicative of the difference between the first value and the second value; and coding said at least one parameter into the bitstream.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	96%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2009/0180533	CONTROL OF VIDEO DECODER FOR REVERSE PLAYBACK OPERATION	Apple Inc.	Bushell; John Samuel	375	H04B	20080111	3	95%	☐

Abstract: A video decoder includes a mode of operation for reverse playback that includes dividing a sequence of coded video data into groups of pictures (GOPs) and further subdividing the groups of pictures into a plurality of spans. GOPs extend in coding order from a first key frame to a terminal frame that precedes another key frame in coding order. Each span is processed in reverse coding order by decoding the first key frame and any reference frames that precede the currently processed span in coding order, selecting a plurality of frames from the currently processed span for decode and display and further selecting for decode but not display any reference frames from the currently processed span that were omitted by the first selection. All selected frames are decoded but only those marked for display are rendered at a display device. The method accommodates control parameters that define the number of spans selected from each GOP and the number of frames selected from each span for decoded and display. Via these control parameters, operation of the method may be tuned to local decoding environments for which processing resources and decoded picture buffer sizes may be unknown.
MainClaim: A decoding method for coded video data, comprising:dividing a group of pictures into a plurality of spans, the coded video data representing frames of source video coded in a coding order, the group of pictures extending in coding order from a first key frame to a terminal frame that precedes another key frame in coding order,processing each span in reverse coding order, comprising:a) decoding the first key frame and any reference frames that precede the currently processed span in coding order,b) selecting a plurality of frames from the currently processed span for decode and display,c) selecting any reference frames from the currently processed span that are omitted by the selection of step b) for decode but not display, andd) decoding the frames selected by steps b) and c);displaying in reverse display order the decoded frames selected for display.

2006/0233237	Single pass constrained constant bit-rate encoding	APPLE COMPUTER, INC.	Lu; Jian | Jiang; Wenqing | Wallace; Gregory Kent	375	H04N	20050415	3	94%	☐

Abstract: Data, such as video data, is encoded by identifying a data segment to be encoded. The data segment includes multiple frames. A bit-rate profile for encoding the data segment is generated. The bit-rate profile defines a number of bits associated with each frame in the data segment. Frames are encoded using the bit-rate profile. The bit-rate profile is updated periodically to incorporate past encoding statistics and compensate for any encoding bits deviations from the initial profile.
MainClaim: A method for encoding data, the method comprising: identifying a data segment to be encoded, the data segment including a plurality of frames; generating a bit-rate profile for encoding the data segment, the bit-rate profile defining a number of bits associated with each frame in the data segment; and encoding frames in the data segment using the bit-rate profile.

6,724,434	Inserting one or more video pictures by combining encoded video data before decoding	Nokia Corporation	Aaltonen; Janne	348	H04N	20000309	0	100%	☐

Abstract: The invention relates to the insetting of a moving picture in a moving main picture when the picture signals are in an encoded digital format. The main idea is that the picture signals are combined prior to decoding. The frames of the picture to be inset are scaled down by reducing the number of macro blocks in them in such a manner that the picture whole is retained. The macro blocks of a certain area of the main picture are replaced by the macro blocks of the reduced picture and the combined video signal is decoded. The video signals (ES1, ES2) to be combined may be picked up from different sources or extracted from a transport stream where they are in packets. The system according to the invention requires only a single decoder (210), which considerably reduces the amount of computation required by the combination of the pictures. The advantage is emphasized if there are several pictures to be combined.
MainClaim: A method for insetting a moving secondary picture in a moving main picture, in which method the signals of said pictures are encoded in frames in a digital format, the method comprising the steps of:

scaling down the secondary picture by reducing a number of macro blocks included in each individual frame of the secondary picture and

insetting the scaled-down frame as a mini-picture in the frame of the main picture,

wherein said insetting is performed prior to decoding said signals of said pictures.

2009/0180533	CONTROL OF VIDEO DECODER FOR REVERSE PLAYBACK OPERATION	Apple Inc.	Bushell; John Samuel	375	H04B	20080111	3	92%	☐

Abstract: A video decoder includes a mode of operation for reverse playback that includes dividing a sequence of coded video data into groups of pictures (GOPs) and further subdividing the groups of pictures into a plurality of spans. GOPs extend in coding order from a first key frame to a terminal frame that precedes another key frame in coding order. Each span is processed in reverse coding order by decoding the first key frame and any reference frames that precede the currently processed span in coding order, selecting a plurality of frames from the currently processed span for decode and display and further selecting for decode but not display any reference frames from the currently processed span that were omitted by the first selection. All selected frames are decoded but only those marked for display are rendered at a display device. The method accommodates control parameters that define the number of spans selected from each GOP and the number of frames selected from each span for decoded and display. Via these control parameters, operation of the method may be tuned to local decoding environments for which processing resources and decoded picture buffer sizes may be unknown.
MainClaim: A decoding method for coded video data, comprising:dividing a group of pictures into a plurality of spans, the coded video data representing frames of source video coded in a coding order, the group of pictures extending in coding order from a first key frame to a terminal frame that precedes another key frame in coding order,processing each span in reverse coding order, comprising:a) decoding the first key frame and any reference frames that precede the currently processed span in coding order,b) selecting a plurality of frames from the currently processed span for decode and display,c) selecting any reference frames from the currently processed span that are omitted by the selection of step b) for decode but not display, andd) decoding the frames selected by steps b) and c);displaying in reverse display order the decoded frames selected for display.

7,457,747	Noise detection for audio encoding by mean and variance energy ratio	Nokia Corporation	Ojanpera; Juha	704	G10L	20040823	0	100%	☐

Abstract: The techniques described are utilized for detection of noise and noise-like segments in audio coding. The techniques can include performing a prediction gain calculation, an energy compaction calculation, and a mean and variation energy calculation. Signal adaptive noise decisions can be made both in time and frequency dimensions. The techniques can be embodied as part of an AAC (advanced audio coding) encoder to detect noise and noise-like spectral bands. This detected information is transmitted in a bitstream using a signaling method defined for a perceptual noise substitution (PNS) encoding tool of the AAC encoder.
MainClaim: A method for estimating and detecting noise and noise-like spectral signal segments, the signal segments corresponding to one or more frequency bands of a signal, the method comprising: calculating mean and variance energies for each frequency band of a signal; defining boundaries for a ratio of the mean and variance energies in each frequency band of the signal; and determining if each frequency band of the signal is noise or noise-like using the defined boundaries and a stage of two or more decisions.

7,627,481	Adapting masking thresholds for encoding a low	Apple Inc.	Kuo; Shyh-Shiaw | Baumgarte;	704	G10L	20050419	1	92%	☐

	frequency transient signal in audio data		Frank						

Abstract: An improved audio coding technique encodes audio having a low frequency transient signal, using a long block, but with a set of adapted masking thresholds. Upon identifying an audio window that contains a low frequency transient signal, masking thresholds for the long block may be calculated as usual. A set of masking thresholds calculated for the 8 short blocks corresponding to the long block are calculated. The masking thresholds for low frequency critical bands are adapted based on the thresholds calculated for the short blocks, and the resulting adapted masking thresholds are used to encode the long block of audio data. The result is encoded audio with rich harmonic content and negligible coder noise resulting from the low frequency transient signal.
MainClaim: A volatile or non-volatile machine-readable storage medium storing one or more sequences of instructions which, when executed by one or more processors, cause the one or more processors to perform: in response to determining that a first window of audio data does not contain a low frequency transient signal, computing a first group of masking thresholds for a first long block that corresponds to the first window of audio data; and based on said first group of masking thresholds, encoding said first long block of audio data; in response to identifying a low frequency transient signal in a second window of audio data, computing a second group of masking thresholds for short blocks corresponding to the second window of audio data; selecting one or more particular masking thresholds, from the second group of masking thresholds, for use in encoding a second long block of audio data that corresponds to the second window of audio data; and encoding, based on the one or more particular masking thresholds, the second long block of audio data.

7,072,366	Method for scalable encoding of media streams, a scalable encoder and a terminal	Nokia Mobile Phones, Ltd.	Parkkinen; Teemu | Ojala; Pasi	370	H04J	20010713	0	100%	☐

Abstract: A scalable encoder (100) for encoding a media signal is described. It comprises first encoding means (210) for producing a first data stream (102), which is a core data stream relating to the media signal (101), having a first bit-rate; second encoding means (230) for producing a second data stream (103), which comprises a set of enhancement data streams relating to the media signal, having a second bit-rate; and a multiplexer (110) for combining at least the first data stream and the second data stream into a third data stream (104). The scalable encoder it further comprises control means (420, 421, 422), which is arranged to receive control information (401), to determine a target combination of the first data stream and the second data stream in the third data stream according to the control information and to adjust the combination of the first data stream and the second data stream in the third data stream by affecting the first and the second bit-rates. A multimedia terminal having a scalable encoder and a method for encoding data are also presented.
MainClaim: Scalable encoder for encoding a media signal, said encoder comprising a core encoder for producing a first data stream, which is a core data stream relating to the media signal, having a first bit-rate, an enhancement encoder for producing a second data stream, which comprises at least one enhancement data stream relating to the media signal, said at least one enhancement data stream having a second bit-rate, a multiplexer for combining at least the first data stream and the second data stream into a third data stream, and a controller arranged to receive control information, to determine a target ratio of bitrates of the first data stream and the second data stream in the third data stream according to the control information and to adjust the combination of the first data stream and the second data stream in the third data stream by adjusting the first and the second bit-rates so as to maintain the ratio substantially constant.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	93%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2008/0181298	HYBRID SCALABLE CODING	APPLE COMPUTER, INC.	Shi; Xiaojin | Wu; Hsi-Jung | Normile; James Oliver	375	H04N	20070126	4	93%	☐

Abstract: Systems, apparatuses and methods whereby coded bitstreams are delivered to downstream end-user devices having various performance capabilities. A head-end encoder/video store generates a primary coded bitstream and

metadata for delivery to an intermediate re-encoding system. The re-encoding system recodes the primary coded bitstream to generate secondary coded bitstreams based on coding parameters in the metadata. Each secondary coded bitstream is matched to a conformance point of a downstream end-user device. Coding parameters for each conformance point can be derived from the head-end encoder encoding original source video to generate the secondary coded bitstreams and extracting information from the coding process/results. The metadata can then can be communicated as part of the primary coded bitstream (e.g., as SEI) or can be communicated separately. As a result, the complexity of the secondary coded bitstream is appropriately scaled to match the capabilities of the downstream end-user device to which it is delivered.
MainClaim: A scalable encoding method, comprising:encoding source video according to a primary coding profile to generate a primary coded bitstream;encoding the source video according to a plurality of secondary coding profiles to generate a plurality of corresponding secondary coded bitstreams; andderiving metadata based on generation of the plurality of secondary coded bitstreams;wherein the metadata comprises coding parameters to recode the primary coded bitstream to regenerate the plurality of secondary coded bitstreams.

2009/0180545	HYPOTHETICAL REFERENCE DECODER	APPLE INC.	WU; Hsi-Jung | HASKELL; Barin Geoffry | SHI; Xiaojin | NORMILE; James Oliver	375	H04N	20080111	2	93%	☐

Abstract: Disclosed is a system and method of controlling a video decoder, including a reviewing channel data representing coded video data generated by an encoder to identify parameters of a hypothetical reference decoder (HRD) used by the encoder during coding operations. A parameter representing an exit data rate requirement of a coded picture buffer (CPB) of the HRD is compared against exit rate performance of the video decoder. If the exit rate performance of the video coder matches the exit rate requirement of the HRD, the coded video data is decoded, otherwise, a certain decoding degradation scheme can be applied, including disabling decoder from decoding the coded video data.
MainClaim: A method of controlling a video decoder, comprising:monitoring channel data representing coded video data generated by an encoder to identify parameters of a hypothetical reference decoder (HRD) used by the encoder during coding operations, andcomparing a parameter representing an exit data rate requirement of a coded picture buffer (CPB) of the HRD against exit rate performance of the video decoder,if the exit rate performance of the video decoder matches the exit rate requirement of the HRD, decoding the coded video data,otherwise, apply a degradation scheme, including disabling the video decoder from decoding the coded video data.

7,447,639	System and method for error concealment in digital audio transmission	Nokia Corporation	Wang; Ye	704	G10L	20011214	0	100%	☐

Abstract: A beat-pattern based error concealment system and method which detects drum-like beat patterns of music signals on the encoder side of the system and embeds the beat information as data ancillary to a preceding audio data interval in the transmitted compressed bitstream. The embedded information is then used to perform an error concealment task on the decoder side of the system. The beat detector functions as part of an error concealment system in an audio decoding section used in audio information transfer and audio download-streaming system terminal devices such as mobile phones. The disclosed sender-based method improves error concealment performance while reducing decoder complexity.
MainClaim: A method comprising: (a) formatting a stream of audio data provided by a audio source into a sequence of audio data intervals; (b) transform encoding the sequence of audio data intervals to form a sequence of encoded audio data intervals, each of the encoded audio data intervals having a plurality of transform coefficients; (c) analyzing the transform coefficients of the sequence of encoded audio data intervals in the sequence so as to identify encoded transient audio data intervals, each of the encoded transient audio data intervals including a short transient signal having first transient signal characteristics; and (d) embedding ancillary data into encoded audio data intervals preceding the encoded transient audio data intervals, the ancillary data providing notification that the encoded transient audio data intervals include the short transient signals.

7,634,413	Bitrate constrained variable bitrate audio encoding	Apple Inc.	Kuo; Shyh-shiaw | Kaura; Hong	704	G10L	20050225	1	92%	☐

Abstract: A hybrid audio encoding technique incorporates both ABR, or CBR, and VBR encoding modes. For each audio coding block, after a VBR quantization loop meets the NMR target, a second quantization loop might be called to adaptively control the final bitrate. That is, if the NMR-based quantization loop results in a bitrate that is not within a specified range, then a bitrate-based CBR or ABR quantization loop determines a final bitrate that is within the range and is adaptively determined based on the encoding difficulty of the audio data. Excessive bitrates from use of conventional VBR mode are eliminated, while still providing much more constant perceptual sound quality than use of conventional CBR mode can achieve.
MainClaim: A volatile or non-volatile machine-readable storage medium storing one or more sequences of instructions which, when executed by one or more processors, cause the one or more processors to perform: in a single pass of an audio stream that comprises a plurality of blocks of audio data, performing, for at least one block of audio data of the plurality of blocks of audio data, the steps of: computing a first bitrate based on a noise-to-masking ratio target for the block of audio data; determining whether the first bitrate is within a specified range; if the first bitrate is not within the specified range, then computing a target bitrate; computing, based on said target bitrate, a final bitrate at which the block of audio data is encoded; wherein the final bitrate is within the specified range; and outputting the block of audio data encoded using the final bitrate; if the first bitrate is within the specified range, then outputting the block of audio data encoded using the first bitrate.

	Method and apparatus for								

5,432,884	decoding LPC-encoded speech using a median filter modification of LPC filter factors to compensate for transmission errors	Nokia Mobile Phones Ltd.	Kapanen; Pekka | Neuvo; Yrjo | Jarvinen; Kari	704	G10L	19930322	0	100%	☐

Abstract: Disclosed herein are methods and apparatus for improving the quality of synthesized speech that is transmitted through a channel that is susceptible to transmission errors. In a presently preferred embodiment of the invention a speech signal is assumed to be first encoded using a Linear Predictive Coding (LPC) technique prior to transmission. The parameters that describe the short-term spectral behavior of the speech signal are received and then applied to and processed by a non-linear median processing block only on an occurrence of a predetermined number of transmission errors in the received LPC speech signal. The median-processed short term speech parameters are subsequently employed, together with a received excitation signal, in a synthesis filter to synthesize a speech signal of improved quality over what would be obtained if the short term speech parameters were not median processed to compensate for the transmission errors.

MainClaim: A method for improving the quality of a synthesized speech signal that is obtained from a decoder that operates on a Linear Predictive Coded (LPC) speech signal, comprising the steps of:

receiving a LPC speech signal through a transmission channel that is susceptible to transmission errors;

demultiplexing and dequantizing the received LPC speech signal to obtain an excitation signal and also a set of LPC filter factors that specify a short term spectral behavior of the LPC speech signal;

generating a status signal that indicates a number of transmission errors that are occurring in the transmission channel; and

synthesizing a speech signal from the excitation signal in cooperation with the set of LPC filter factors, wherein

the step of synthesizing includes the steps of monitoring the status signal to detect a condition wherein the number of transmission errors exceeds a threshold number and, in response to the threshold number being exceeded, modifying the set of LPC filter factors prior to synthesizing the speech signal, wherein the step of modifying includes a step of performing a non-linear median filtering operation on the LPC filter factors.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto | Ponceleon; Dulce | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	7	94%	☐

Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.

MainClaim: A method for linear predictive speech encoding comprising the steps of:

a) defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;

b) determining an optimal continuous vector;

c) determining an error from the optimal continuous vector;

d) determining if the error is less than a minimum error;

e) providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and

f) providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

5,717,827	Text-to-speech system using vector quantization based speech enconding/decoding	Apple Computer, Inc.	Narayan; Shankar	704	G10L	19960415	2	92%	☐

Abstract: A text-to-speech system includes a memory storing a set of quantization vectors. A first processing module is responsive to the sound segment codes generated in response to text in the sequence to identify strings of noise compensated quantization vectors for respective sound segment codes in the sequence. A decoder generates a speech data sequence in response to the strings of quantization vectors. An audio transducer is coupled to the processing modules, and generates sound in response to the speech data sequence. The quantization vectors represent a quantization of a sound segment data having a pre-emphasis to de-correlate the sound samples used for quantization and the quantization noise. In decompressing the sound segment data, an inverse linear prediction filter is applied to the

identified strings of quantization vectors to reverse the pre-emphasis. Also, the quantization vectors represent quantization of results of pitch filtering of sound segment data. Thus, an inverse pitch filter is applied to the identified strings of quantization vectors in the module of generating the speech data sequence.
MainClaim: An apparatus for converting text to speech, comprising:

means for translating the text to a sequence of sound segment codes representing speech;

means for generating a set of noise compensated quantization vectors by encoding the sound segment codes representing speech using a first set of quantization vectors and then performing a noise shaping filter operation on the first set of quantization vectors;

memory storing the set of noise compensated quantization vectors;

means, responsive to sound segment codes in the sequence, for identifying strings of noise compensated quantization vectors in the set of noise compensated quantization vectors for respective sound segment codes in the sequence;

means, coupled to the means for identifying and the memory, for generating a speech data sequence in response to the strings of noise compensated quantization vectors; and

an audio transducer, coupled to the means for generating, to generate sound in response to the speech data sequence.

7,016,543	Method for providing a terminal with coded still image signals, communications system, network element and module	Nokia Corporation	Castagno; Roberto | Coulombe; Stephane	382	G06K	20020520	0	100%	☐

Abstract: The invention relates to a method for providing a terminal MS**2** of a communications system with coded still image signals. In order to enable a further content adaptation for multimedia messages, it is proposed that the method comprises receiving coded video signals at a network element of said communications system, converting at least a part of said received coded video signals in said network element to coded still image signals, and delivering said coded still image signals to a terminal MS**2** of said communication system. The computation required for said conversion can be minimized by exploiting the commonalities of video and still images compression methods that are based on the Discrete Cosine Transform scheme. Thus it is rendered possible to provide excerpts of transmitted video clips also to terminals not capable of handling at least this particular video clip. The invention equally relates to a corresponding communications system, network element and module for a network element.
MainClaim: Method for providing a terminal (MS**2**) of a communications system with coded still image signals, said method comprising:

receiving coded video signals at a network element of said communications system;

converting at least a part of said received coded video signals in said network element to coded still image signals; and

delivering said coded still image signals to said terminal (MS**2**) of said communications system.

2008/0181298	HYBRID SCALABLE CODING	APPLE COMPUTER, INC.	Shi; Xiaojin | Wu; Hsi-Jung | Normile; James Oliver	375	H04N	20070126	4	92%	☐

Abstract: Systems, apparatuses and methods whereby coded bitstreams are delivered to downstream end-user devices having various performance capabilities. A head-end encoder/video store generates a primary coded bitstream and metadata for delivery to an intermediate re-encoding system. The re-encoding system recodes the primary coded bitstream to generate secondary coded bitstreams based on coding parameters in the metadata. Each secondary coded bitstream is matched to a conformance point of a downstream end-user device. Coding parameters for each conformance point can be derived from the head-end encoder encoding original source video to generate the secondary coded bitstreams and extracting information from the coding process/results. The metadata can then can be communicated as part of the primary coded bitstream (e.g., as SEI) or can be communicated separately. As a result, the complexity of the secondary coded bitstream is appropriately scaled to match the capabilities of the downstream end-user device to which it is delivered.
MainClaim: A scalable encoding method, comprising:encoding source video according to a primary coding profile to generate a primary coded bitstream;encoding the source video according to a plurality of secondary coding profiles to generate a plurality of corresponding secondary coded bitstreams; andderiving metadata based on generation of the plurality of secondary coded bitstreams;wherein the metadata comprises coding parameters to recode the primary coded bitstream to regenerate the plurality of secondary coded bitstreams.

5,579,433	Digital coding of speech signals using analysis filtering and synthesis filtering	Nokia Mobile Phones, Ltd.	Jarvinen; Kari J.	704	G10L	19930507	0	100%	☐

Abstract: A digital speech encoder is constructed to include a short term analyzer for forming a set of prediction parameters a(i), corresponding to an input speech signal, and an encoder for producing an excitation signal. The encoder includes a plurality of serially coupled coding blocks, wherein each coding block includes an analysis filter, a

sample selection block, and a synthesizer filter. The analysis filter outputs speech signal sample values to the sample selection block, which selects and outputs K_i sample values representing a selected partial excitation signal. The synthesis filter synthesizes a speech signal corresponding to the selected partial excitation signal output by the selection block and outputs a partial excitation synthesis result to an output of the coding block. At the output of each coding block is a subtractor arranged for subtracting a partial excitation synthesis result that is output from the coding block from the speech signal to obtain a difference signal. The difference signal is coupled to the input of an analysis filter of a next serially coupled coding block. A quantizer is also provided for forming the excitation signal in accordance with all of the partial excitation signals generated by the coding blocks.

MainClaim: An encoder comprising at least one coding block, said at least one coding block comprising:

filter means for forming excitation signals corresponding to a first signal input to the filter means,

selection means for selecting from the excitation signals, and in accordance with predetermined criteria, a set of partial excitation signals, and

synthesis means for forming a second signal corresponding to the et of partial excitation signals.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto | Ponceleon; Dulce | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	7	94%	☐

Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.

MainClaim: A method for linear predictive speech encoding comprising the steps of:

a) defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;

b) determining an optimal continuous vector;

c) determining an error from the optimal continuous vector;

d) determining if the error is less than a minimum error;

e) providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and

f) providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

5,742,733	Parametric speech coding	Nokia Mobile Phones Ltd.	Jarvinen; Kari Juhani	704	G10L	19950203	0	100%	☐

Abstract: This invention is a new kind of parametric speech coding system in which the parametrization according to a speech production model is carried out not only on the speech signal to be coded but also on the decoded, that is, synthesized speech signal. A parametric representation (207) of the synthesized signal is compared with a parametric representation (203) of the original speech signal and the coding functions are controlled according to their difference. At first, parametrization (205) according to the speech production model used in the encoding is carried out on the decoded speech signal. Next, the parameter values formed from the synthesized speech signals are compared (204) with the parameter values (203) calculated, in the encoder, from the speech signal to be coded. A known distance measure can be used in carrying out the comparison. The coding functions are controlled by means of a shaping block (202) in such a way that the difference indicated by the distance measure is made as small as possible.

MainClaim: A speech encoder, comprising:

a first parametrization module for determining first prediction parameters corresponding to a speech signal input thereto;

an analysis filter module for determining a modeling error corresponding to the speech signal and first prediction parameters,

a synthesis filter module for forming a reconstructed speech signal corresponding to the modeling error and the first prediction parameters,

a second parametrization module for determining a second set of prediction parameters corresponding to the reconstructed speech signal,

a comparison module for forming a comparison signal indicative of a difference between the first and second prediction parameters, and

a shaping module for shaping the modelling error such that the difference between the first and second prediction parameters is reduced.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto | Ponceleon; Dulce | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	7	95%	☐

Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.
MainClaim: A method for linear predictive speech encoding comprising the steps of:

a) defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;

b) determining an optimal continuous vector;

c) determining an error from the optimal continuous vector;

d) determining if the error is less than a minimum error;

e) providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and

f) providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

5,717,827	Text-to-speech system using vector quantization based speech enconding/decoding	Apple Computer, Inc.	Narayan; Shankar	704	G10L	19960415	2	94%	☐

Abstract: A text-to-speech system includes a memory storing a set of quantization vectors. A first processing module is responsive to the sound segment codes generated in response to text in the sequence to identify strings of noise compensated quantization vectors for respective sound segment codes in the sequence. A decoder generates a speech data sequence in response to the strings of quantization vectors. An audio transducer is coupled to the processing modules, and generates sound in response to the speech data sequence. The quantization vectors represent a quantization of a sound segment data having a pre-emphasis to de-correlate the sound samples used for quantization and the quantization noise. In decompressing the sound segment data, an inverse linear prediction filter is applied to the identified strings of quantization vectors to reverse the pre-emphasis. Also, the quantization vectors represent quantization of results of pitch filtering of sound segment data. Thus, an inverse pitch filter is applied to the identified strings of quantization vectors in the module of generating the speech data sequence.
MainClaim: An apparatus for converting text to speech, comprising:

means for translating the text to a sequence of sound segment codes representing speech;

means for generating a set of noise compensated quantization vectors by encoding the sound segment codes representing speech using a first set of quantization vectors and then performing a noise shaping filter operation on the first set of quantization vectors;

memory storing the set of noise compensated quantization vectors;

means, responsive to sound segment codes in the sequence, for identifying strings of noise compensated quantization vectors in the set of noise compensated quantization vectors for respective sound segment codes in the sequence;

means, coupled to the means for identifying and the memory, for generating a speech data sequence in response to the strings of noise compensated quantization vectors; and

an audio transducer, coupled to the means for generating, to generate sound in response to the speech data sequence.

5,761,635	Method and apparatus for implementing a long-term synthesis filter	Nokia Mobile Phones Ltd.	Jarvinen; Kari Juhani	704	G10L	19960429	0	100%	☐

Abstract: A synthesis filter is disclosed which models the effect of the fundamental frequency of speech for digital speech coders operating on the analysis-by-synthesis principle. High fundamental frequencies having a period shorter than the corresponding cycle length of the frame employed in the analysis-by-synthesis method are optimally encoded. The filter is constructed of a number of parallel, separately updatable synthesis-memory blocks. When analysis delays shorter than the analysis frame are used, a portion of a signal that was stored in memory several frames earlier is

selected and scaled to approximate the missing portion of the analysis frame using the available portion of the analysis frame.
MainClaim: A method for operating a long-term synthesis filter utilising an analysis-by-synthesis procedure, said procedure comprising the steps of:

reading signals of a predetermined length stored in portions of an adaptive code book corresponding to different delay values and utilising the signals for forming respective synthesis signals,

comparing the respective synthesis signals with a target signal to determine their decree of correlation and forming respective error signals indicative of the degree of correlation between a respective synthesis signal and the target signal, and

selecting a synthesis signal producing the greatest degree of correlation for synthesis and storing said selected signal in an auxiliary memory means for an adaptive code book when a delay value is less than or equal to the predetermined length.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto | Ponceleon; Dulce | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	7	94%	☐

Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.
MainClaim: A method for linear predictive speech encoding comprising the steps of:

a) defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;

b) determining an optimal continuous vector;

c) determining an error from the optimal continuous vector;

d) determining if the error is less than a minimum error;

e) providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and

f) providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

5,812,967	Recursive pitch predictor employing an adaptively determined search window	Apple Computer, Inc.	Ponceleon; Dulce | Manduchi; Roberto | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	2	94%	☐

Abstract: A method for improved recursive pitch prediction includes providing a search window for pitch estimates based upon a previously computed pitch, computing pitch estimates for the search window, and determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames. The method further includes expanding the search window to a full pitch window after the first predetermined number of frames, and calculating pitch estimates for the full pitch window for a second predetermined number of frames. A system for improved recursive pitch prediction includes a speech generator of speech signals, and a central processing unit coupled to the speech generator. The central processing unit further is capable of coordinating pitch estimation of the speech signals, including providing a search window for pitch estimates based upon a previously computed pitch, calculating pitch estimates for the search window, and determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames.
MainClaim: A method for improved recursive pitch prediction in digital speech signal processing, the method comprising the steps of:

a) utilizing a search window that falls within a full pitch window for pitch estimates based upon a location of a previously computed pitch within the search window;

b) determining pitch estimates for the search window; and

c) determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames, wherein inter-frame correlation of pitch in speech signals is better estimated.

7,468,752	Camera output format for real time viewfinder/video image	Nokia Corporation	Kalevo; Ossi	348	H04N	20031023	0	100%	☐

Abstract: This invention describes horizontal and vertical downscaling of the real-time video image using a camera sensor and a processing block (a base band engine in camera-phone mobile devices) for a real-time viewfinder display and/or video imaging. Horizontal downscaling is performed by the camera sensor and vertical downscaling is performed by the processing block. The invented image format enables the reduction of memory, processing power and bus capability, when the smaller resolution output image is needed to process from the higher resolution input image.
MainClaim: A method, comprising: generating a real-time video signal of the video image by a camera sensor, generating a real-time horizontally downscaled video signal using horizontal downscaling of the real-time video signal by the camera sensor using combining weighted pixels values according to a predetermined algorithm, and generating a real-time vertically and horizontally downscaled video signal using vertical downscaling of the real-time horizontally downscaled video signal by a processing block, wherein the horizontal downscaling and the vertical downscaling are performed separately in time.

7,711,200	Video acquisition with integrated GPU processing	Apple Inc.	Ouzilevski; Alexei V. | Urbina; Fernando | Bilbrey; Brett | Zipnick; Jay	382	G06K	20050929	1	93%	☐

Abstract: Systems and techniques for processing sequences of video images involve receiving, on a computer, data corresponding to a sequence of video images detected by an image sensor. The received data is processed using a graphics processor to adjust one or more visual characteristics of the video images corresponding to the received data. The received data can include video data defining pixel values and ancillary data relating to settings on the image sensor. The video data can be processed in accordance with ancillary data to adjust the visual characteristics, which can include filtering the images, blending images, and/or other processing operations.
MainClaim: A method comprising: receiving video data detected by an image sensor, the video data defining a sequence of frames; receiving ancillary data identified approximately concurrently with the detection of video data by the image sensor, the ancillary data indicating at least one characteristic ancillary to the video data; and processing the video data based, at least in part, on the ancillary data to produce converted frames, wherein the converted frames have a reduced degree of visual noise relative to the sequence of frames.

7,596,280	Video acquisition with integrated GPU processing	Apple Inc.	Bilbrey; Brett | Zipnick; Jay | Ouzilevski; Alexei V.	382	G06K	20050929	1	93%	☐

Abstract: Systems and techniques for processing sequences of video images involve receiving, on a computer, data corresponding to a sequence of video images detected by an image sensor. The received data is processed using a graphics processor to adjust one or more visual characteristics of the video images corresponding to the received data. The received data can include video data defining pixel values and ancillary data relating to settings on the image sensor. The video data can be processed in accordance with ancillary data to adjust the visual characteristics, which can include filtering the images, blending images, and/or other processing operations.
MainClaim: A method comprising: using one or more processors to perform identifying a first gain level associated with an autoexposure phase of a video detection process; receiving a sequence of frames detected by an image sensor in a high dynamic range phase of the video detection process, the frames detected using at least two different gain levels, each of the at least two different gain levels differing from the first gain level, and each frame comprising a plurality of pixel values; identifying a frame from the sequence of frames to blend with at least one other frame detected using a different gain level to produce a blended frame for replacing the frame in the sequence of frames; normalizing and adjusting pixel values for the frame and the at least one other frame, wherein the pixel values are normalized to approximate the first gain level and the pixel values are adjusted using blending factors; and combining the adjusted, normalized pixel values to generate a blended pixel value.

6,980,138	Method and a system for variable-length decoding, and a device for the localization of codewords	Nokia Corporation	Vassiliadis; Stamatis | Nikara; Jari | Takala; Jarmo | Liuha; Petri	341	H03M	20030618	0	100%	☐

Abstract: A method and associated decoder, system, device and storage means for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, wherein the bit stream is processed in parts, each part being subjected to a search for codewords, and where found codewords are decoded. At least partly overlapping fields are extracted from the bit stream part in such a way that the starting point of at least two fields is a possible starting point of a codeword in that part. In at least one field, the end of the codeword is searched, and the data related to the codeword is determined on the basis of the end point of the codeword. Data relating to at least one codeword is used to determine the occurrence of the codeword intended to be decoded in a field, and the found codeword is decoded.
MainClaim: A method for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, in which method the bit stream to be decoded is processed in parts, each part of the bit stream is subjected to a search for codewords, and found codewords are decoded, wherein in the method, at least partly overlapping fields are extracted from the part of the bit stream to be processed in such a way that the starting point of at least two fields is a possible starting point for a codeword in said bit stream part, a codeword end is searched from at least one field, and data related to the codeword is determined on the basis of the end point of the codeword, and the data related to at least one codeword is used to determine the occurrence of the codeword to be decoded in the field, and the found codeword is decoded.

2010/0117875	SYSTEM AND METHOD FOR COMPRESSING A STREAM OF INTEGER-VALUED	APPLE INC.	Oslick; Mitchell Howard	341	H03M	20081110	2	95%	☐

	DATA								

Abstract: A method and system are provided to minimize the size and complexity of bitstreams associated with encoded data by using a new compression scheme. An entropy encoder receives a list of run/data value pairs and entropy encodes separately the runs and data values, selecting their codewords according to length and magnitude, respectively, and catenates the resulting codeword pairs--run codeword first--in an encoded bitstream.
MainClaim: A method for entropy coding run/data value pair data corresponding to a stream of integer-valued data, said method comprising:classifying each run based on its length;if the run is 1, selecting a first code with a length of 1;if the run is classified as short, selecting a first code with a first predetermined length, each first code of first predetermined length having a preamble to distinguish the other run classifications, and having a value based on the run's length;if the run is classified as long, selecting a first code with a second predetermined length, each first code of second predetermined length having a preamble to distinguish the other run classifications, and having a value based on the run's length; andoutputting the selected first code to a channel.

5,327,519	Pulse pattern excited linear prediction voice coder	Nokia Mobile Phones Ltd.	Haggvist; Jari | Jarvinen; Kari | Estola; Kari-Pekka | Ranta; Jukka	704	G10L	19920519	0	100%	☐

Abstract: Speech coding of the code excited linear predictive type is implemented by providing an excitation vector which comprises a set of a pre-determined number of pulse patterns from a codebook of P pulse patterns, which have a selected orientation and a pre-determined delay with respect to the starting point of the excitation vector. This requires modest computational power and a small memory space, which allows it to be implemented in one signal processor.
MainClaim: A method for generating an excitation vector in a code excited linear predictive coder for processing digital speech signals partitioned into frames, in which:

(a) a short term synthesizer filter and a long term synthesizer filter are serially coupled together such that an output of said long term synthesizer filter feeds an input of said short term synthesizer filter, said long term synthesizer filter and said short term synthesizer filter are excited by an excitation vector to generate a reconstructed speech frame; and

(b) an error signal is formed for representing a difference between an input speech frame and the reconstructed speech frame;

the method comprising the steps of:

(i) deriving from a codebook all variations of a plurality of sets, each set comprising a predetermined number K of pulse patterns, the codebook having a number P of pulse patterns stored therein, wherein P>K;

(ii) with respect to individual ones of the plurality of sets, creating a plurality of excitation vector candidates by (a) arranging pulse patterns to form a candidate excitation vector, and (b) by shifting a position and changing an orientation of each pulse pattern along the candidate excitation vector;

(iii) determining which of the plurality of excitation vector candidates gives a minimum value for the error signal, and selecting the determined candidate excitation vector as an excitation vector; and

(iv) outputting the set, the position, and the orientation of pulse patterns along the selected excitation vector as output parameters of the coder.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto | Ponceleon; Dulce | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	7	97%	☐

Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.
MainClaim: A method for linear predictive speech encoding comprising the steps of:

a) defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;

b) determining an optimal continuous vector;

c) determining an error from the optimal continuous vector;

d) determining if the error is less than a minimum error;

e) providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and

f) providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

5,812,967	Recursive pitch predictor employing an adaptively determined search window	Apple Computer, Inc.	Ponceleon; Dulce | Manduchi; Roberto | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	2	94%	☐

Abstract: A method for improved recursive pitch prediction includes providing a search window for pitch estimates based upon a previously computed pitch, computing pitch estimates for the search window, and determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames. The method further includes expanding the search window to a full pitch window after the first predetermined number of frames, and calculating pitch estimates for the full pitch window for a second predetermined number of frames. A system for improved recursive pitch prediction includes a speech generator of speech signals, and a central processing unit coupled to the speech generator. The central processing unit further is capable of coordinating pitch estimation of the speech signals, including providing a search window for pitch estimates based upon a previously computed pitch, calculating pitch estimates for the search window, and determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames.

MainClaim: A method for improved recursive pitch prediction in digital speech signal processing, the method comprising the steps of:

a) utilizing a search window that falls within a full pitch window for pitch estimates based upon a location of a previously computed pitch within the search window;

b) determining pitch estimates for the search window; and

c) determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames, wherein inter-frame correlation of pitch in speech signals is better estimated.

5,598,505	Cepstral correction vector quantizer for speech recognition	Apple Computer, Inc.	Austin; Stephen C. | Fineberg; Adam B.	704	G10L	19940930	1	94%	☐

Abstract: A method for correcting cepstral vectors representative of speech generated in a test environment by use of a vector quantization (VQ) system with a codebook of vectors that was generated using speech and acoustic data from a different (training) environment. The method uses a two-step correction to produce test environment cepstral vectors with reduced non-speech acoustic content. The first correction step subtracts, from the test vector, a coarse correction vector that is computed from an average of test environment cepstral vectors. The second step involves a VQ of the coarsely corrected test vector at each node of the VQ tree. The third step is the addition of a fine correction vector to the coarsely corrected test vector that is generated by subtracting a running (moving) average of the coarsely corrected test vectors associated with the deepest VQ tree node from the VQ vector closest to the coarsely corrected test vector. The method is independent of the means used to generate the cepstral vectors and the corrected output cepstra vectors may be used in various speech processing and classifying systems. The method is adaptable to non-stationary environments.

MainClaim: A method for correcting a cepstral test vector representation of speech from an acoustical test environment using a vector quantizer (VQ) encoder having a VQ encoder codebook based on training data from a different acoustical training environment, the method comprising:

(a) applying a coarse correction vector from the cepstral test vector, the coarse correction vector being representative of the acoustical training environment without the presence of speech, for producing a coarsely corrected cepstral test vector; and

(b) applying a fine correction vector to the coarsely corrected cepstral vector for producing a fine corrected cepstral test vector, the fine correction vector representative of a difference between acoustical test environment with the presence of speech only and the acoustical training environment cepstral training vectors with the presence of speech only.

5,596,677	Methods and apparatus for coding a speech signal using variable order filtering	Nokia Mobile Phones Ltd.	Jarvinen; Kari | Ali-Yrkko; Olli	704	G10L	19931119	0	100%	☐

Abstract: The method concerns digital coding of a speech signal. The method is based on the use of a model of speech production comprising an excitation and shaping of the excitation in a filtering operation in such a manner that the order of the filtering which models the shaping of the excitation signal occurring in the vocal tract is adapted according to the speech signal to be coded. By means of the method it is possible to achieve a total modelling for the speech signal--and thus efficient speech coding--which is better than methods using fixed-order, model-based filtering of the speech tract. From the standpoint of the efficiency of the coding, by decreasing a needlessly large order of the filtering method, the bit rate to be used for coding the excitation signal can be increased or the bit rate resources thus freed up can be allocated for use in the error correction coding. On the other hand, the order of the filtering operation modelling the vocal tract can if necessary be increased if this is of essential benefit in the coding, and correspondingly, the bit rate to be used in coding the excitation signal can be lowered.

MainClaim: A method of coding an input signal comprising a series of speech signal blocks, the method comprising the steps of:

a) developing, in a short-term analyzer, a group of prediction parameters that are characteristic of the input signal, in which in each speech signal block to be coded the prediction parameters are characteristic of the speech signal's short-term spectral content;

b) forming an excitation signal which, when fed to a synthesis filter operating in accordance with the prediction parameters, results in the synthesis of a coded speech signal corresponding to the input signal;

c) the step of developing including a preliminary step of forming a short-term filtering model from two components, one of the two components being a fixed-order, short-term filtering model component with low model order and the other one of the two components being a variable-order, short-term filtering model component with a high model order;

d) the step of developing including the steps of, calculating short-term prediction parameters for both components;

e) adapting a total order of the short-term filtering model in each speech block to be coded, in accordance with the speech signal; and

f) adapting a bit rate used for coding the prediction parameters and a bit rate used for coding the excitation signal in such a manner that increasing the order increases the bit rate used for coding the prediction parameters and, correspondingly, reduces the bit rate used for coding the excitation signal.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto | Ponceleon; Dulce | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	7	94%	☐

Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.
MainClaim: A method for linear predictive speech encoding comprising the steps of:

a) defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;

b) determining an optimal continuous vector;

c) determining an error from the optimal continuous vector;

d) determining if the error is less than a minimum error;

e) providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and

f) providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

6,029,128	Speech synthesizer	Nokia Mobile Phones Ltd.	Jarvinen; Kari | Honkanen; Tero	704	G10L	19960613	0	100%	☐

Abstract: A post-processor 317 and method substantially for enhancing synthesised speech is disclosed. The post-processor 317 operates on a signal ex(n) derived from an excitation generator 211 typically comprising a fixed code book 203 and an adaptive code book 204, the signal ex(n) being formed from the addition of scaled outputs from the fixed code book 203 and adaptive code book 204. The post-processor operates on ex(n) by adding to it a scaled signal pv(n) derived from the adaptive code book 204. A gain or scale factor p is determined by the speech coefficients input to the excitation generator 211. The combined signal ex(n)+pv(n) is normalised by unit 316 and input to an LPC or speech synthesis filter 208, prior to being input to an audio processing unit 209.
MainClaim: A synthesiser for speech synthesis, comprising:

an excitation source; and

a post-processing means coupled to said excitation source for operating on a first signal including speech periodicity information derived from said excitation source, wherein the post-processing means modifies the speech periodicity information content of the first signal in accordance with a second signal derivable from said excitation source in order to produce an enhanced synthesised speech signal;

wherein the post-processing means comprises gain control means for scaling the second signal in accordance with a first scaling factor (p) derivable from pitch information associated with the first signal;

wherein the excitation source comprises a fixed code book and an adaptive code book, the first signal comprising a combination of first and second partial excitation signals respectively originating from the fixed and adaptive code books, the second signal being substantially the same as the second partial excitation signal and originating from the adaptive code book, the first signal being modified by combining the second signal with the first signal, and the first scaling factor (p) being derivable from an adaptive code book gain factor (b) in accordance with the following relationship, ##EQU13## where TH represents threshold values, b is the adaptive code book gain factor, p is the first post-processing means scale factor, a_{enh} is a linear scaler and f(b) is a function of the adaptive code book gain factor b, and

wherein the post-processing means further comprises an adaptive energy control means adapted to scale a modified first signal in accordance with the following relationship, ##EQU14## where N is a suitably chosen adaption period, ex (n) is the first signal, ew' (n) is a modified first signal and k is an energy scale factor.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto | Ponceleon; Dulce | Chu; Ke-Chiang | Wu; Hsi-Jung	704	G10L	19960930	7	93%	☐

Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.
MainClaim: A method for linear predictive speech encoding comprising the steps of:

a) defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;

b) determining an optimal continuous vector;

c) determining an error from the optimal continuous vector;

d) determining if the error is less than a minimum error;

e) providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and

f) providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

7,289,506	Data transmission	Nokia Corporation	Hannuksela; Miska	370	H04L	20000428	0	100%	☐

Abstract: A data transmission system is provided for transmitting a data signal between a server and a communications terminal over a transmission link having a variable bandwidth. The data signal is a scalable compressed multimedia clip comprising a sequence of images. Each image has a base layer and a number of enhancement layers. To cope with variability in the bandwidth, the sequence is re-ordered so that the base layers have greater safety times than the enhancement layers. This allows all of the base layers to arrive in time to be played at the expense of the enhancement layers.
MainClaim: A server for streaming a data signal over a transmission link to a client for streaming playback at the client, the data signal comprising a sequence of data units including primary data units and secondary data units, the primary and secondary data units having a scheduled playback time for streaming playback at the client, the primary and secondary data units being ordered in the data signal according to an original data unit order, the server comprising a re-ordering unit for changing the order of primary and secondary data units in the sequence of data units by exchanging a secondary data unit that precedes a primary data unit in the original data unit order with the primary data unit so as produce a re-ordered data signal with a modified data unit order in which the primary data unit precedes the secondary data unit in the sequence of data units, thereby increasing the likelihood that the primary data unit will be received at the client in time to be played back at its scheduled playback time during streaming playback at the client.

2006/0233237	Single pass constrained constant bit-rate encoding	APPLE COMPUTER, INC.	Lu; Jian | Jiang; Wenqing | Wallace; Gregory Kent	375	H04N	20050415	3	93%	☐

Abstract: Data, such as video data, is encoded by identifying a data segment to be encoded. The data segment includes multiple frames. A bit-rate profile for encoding the data segment is generated. The bit-rate profile defines a number of bits associated with each frame in the data segment. Frames are encoded using the bit-rate profile. The bit-rate profile is updated periodically to incorporate past encoding statistics and compensate for any encoding bits deviations from the initial profile.
MainClaim: A method for encoding data, the method comprising: identifying a data segment to be encoded, the data segment including a plurality of frames; generating a bit-rate profile for encoding the data segment, the bit-rate profile defining a number of bits associated with each frame in the data segment; and encoding frames in the data segment using the bit-rate profile.

7,418,037	Method of performing rate control for a compression system	Apple Inc.	Nie; Xiaochun | Pun; Thomas | Kumar; Roger | Wu; Hsi-Jung	375	H04N	20030430	2	92%	☐

Abstract: A rate controller for allocating a bit budget for video frames to be encoded is disclosed. The rate controller of the present invention considers many different factors when determining the frame bit budget including: desired video quality, target bit rate, frame type (intra-frame or inter-frame), frame duration, intra-frame frequency, frame complexity, intra-block frequency within an intra-frame, buffer overflow, buffer underflow, and the encoded video frame quality for a possible second pass.
MainClaim: A method of encoding digital video information into a bit stream, said method comprising: determining a default bit budget for a video frame to be digitally encoded into said bit stream; examining a plurality of factors related to said video frame or said bit stream; adjusting said default bit budget according to said plurality of factors to generate

an adjusted target bit budget for said video frame, wherein said adjusted target bit budget is based upon an average frame display duration comprising an historical average frame display duration; and using said adjusted target bit budget to encode the video frame.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	92%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

7,552,227	Stream switching based on gradual decoder refresh	Nokia Corporation	Wang; Ye-Kui	709	G06F	20040519	0	100%	☐

Abstract: A signaling method and device for use in stream switching in which GDR random access points are used. In order to indicate the GDR switching points in the bitstreams, a Sync Sample Information Box, which is contained in a Sync Sample Box, is used to provide information of such GDR switching points. The information also includes which slice group is the isolated region and which slice group is the leftover region, if slice groups are applied in encoding. The signaling method can be used in video data transmission using Real-time Transport Protocol (RTP), and a Session Description Protocol (SDP) can be used to convey information indicative of the characteristics of the bitstreams.
MainClaim: A signaling method for use in stream switching among a plurality of bitstreams, comprising: providing in association with the bitstreams information on a switching point at which a first bitstream is caused to switch to a second bitstream, the bitstreams comprising video data indicative of a plurality of video frames, and at least one recovery point which defines a first correct or approximately correct picture in output order in the second bitstream decoded subsequent to said stream switching, and providing in association with the second bitstream a distance between the switching point and the recovery point, wherein the switching point is different from the recovery point.

2010/0008419	Hierarchical Bi-Directional P Frames	APPLE INC.	WU; Hsi-Jung | NORMILE; James Oliver | SHI; Xiaojin | ZHOU; Xiaosong | FILIPPINI; Gianluca | HRISTODORESCU; Ionut	375	H04N	20081219	11	94%	☐

Abstract: Embodiments of the present invention provide systems, methods and apparatuses for generating forward, backward or bi-directional P frames. Prior to encoding a sequence of video frames, P frames within the video sequence can be reordered to include causal and/or non-causal references to one or more reference frames. This allows any block partition of a bi-directional P frame to include a single reference to a reference frame that is temporally displayed either before or after the bi-directional P frame. Compression and visual quality can therefore be improved. Hierarchical frame structures can be constructed using bi-directional P frames to better accommodate low complexity decoding profiles. Multilayered encoded video bitstreams can be generated based on the hierarchical frame structures and can include a first layer of anchor frames and one or more second layers that include bi-directional P frames that reference the anchor frames and/or any frame in any lower level layer.
MainClaim: A method, comprising:receiving, at a video encoder, video data from a video source;determining an order for encoding frames of the video data;encoding the frames according to a hierarchical structure, the hierarchical structure comprising:a baseline encoded layer containing one or more reference anchor frames; andan enhancement encoded layer containing at least one bi-directional P frame, the bi-directional P frame referencing at least one of the one or more reference anchor frames of the baseline encoded layer; andtransmitting the encoded frames to a downstream decoder as an encoded video bitstream.

2007/0217503	Scalable video coding/multiplexing compatible with non-scalable decoders	Apple Computer, Inc.	Haskell; Barin Geoffry | Singer; David William | Pun; Thomas | Wu; Hsi-Jung | Normile; James Oliver	375	H04B	20070223	1	93%	☐

Abstract: Scalable video coding and multiplexing compatible with non-scalable decoders is disclosed. In some embodiments, video data is received and encoded in a manner that renders at least a base layer to be compatible with a non-scalable video encoding standard, including by assigning for at least the base layer default values to one or more scalability parameters. In some embodiments, video data is received and encoded to produce an encoded video data that includes a base layer that conforms to a non-scalable video encoding standard and one or more subordinate non-scalable layers, which subordinate non-scalable layers do not by themselves conform to the non-scalable video encoding standard but which can be combined with the base layer to produce a result that does conform to the non-scalable video encoding standard, such that the result can be decoded by a non-scalable decoder. An identification data identifying those portions of the encoded video data that are associated with a subordinate non-scalable layer is included in the encoded video data.
MainClaim: A method of encoding video data, comprising:receiving a video data; andencoding the video data in a manner that renders at least a base layer to be compatible with a non-scalable video encoding standard, including by assigning for at least the base layer default values to one or more scalability parameters.

2008/0181298	HYBRID SCALABLE CODING	APPLE COMPUTER, INC.	Shi; Xiaojin | Wu; Hsi-Jung | Normile; James Oliver	375	H04N	20070126	4	92%	☐

Abstract: Systems, apparatuses and methods whereby coded bitstreams are delivered to downstream end-user devices having various performance capabilities. A head-end encoder/video store generates a primary coded bitstream and metadata for delivery to an intermediate re-encoding system. The re-encoding system recodes the primary coded bitstream to generate secondary coded bitstreams based on coding parameters in the metadata. Each secondary coded bitstream is matched to a conformance point of a downstream end-user device. Coding parameters for each conformance point can be derived from the head-end encoder encoding original source video to generate the secondary coded bitstreams and extracting information from the coding process/results. The metadata can then can be communicated as part of the primary coded bitstream (e.g., as SEI) or can be communicated separately. As a result, the complexity of the secondary coded bitstream is appropriately scaled to match the capabilities of the downstream end-user device to which it is delivered.
MainClaim: A scalable encoding method, comprising:encoding source video according to a primary coding profile to generate a primary coded bitstream;encoding the source video according to a plurality of secondary coding profiles to generate a plurality of corresponding secondary coded bitstreams; andderiving metadata based on generation of the plurality of secondary coded bitstreams;wherein the metadata comprises coding parameters to recode the primary coded bitstream to regenerate the plurality of secondary coded bitstreams.

7,020,332	Method and apparatus for enhancing a digital image by applying an inverse histogram-based pixel mapping function to pixels of the digital image	Nokia Mobile Phones Limited	Nenonen; Petri | Vehvilainen; Markku	382	G06K	20001222	0	100%	☐

Abstract: A method and associated device wherein an inverse histogram based pixel mapping step is combined with an edge enhancement step such as unsharp masking. In such an arrangement the inverse histogram based pixel mapping step improves the performance of the unsharp masking step, serving to minimize the enhancement of noise components while desired signal components are sharpened.
MainClaim: A method for enhancing a digital image which includes a plurality of image pixels, said method comprising:

constructing a histogram of pixel values from at least part of said image pixels;

forming an inverse histogram from said histogram;

forming a cumulative inverse histogram from said inverse histogram;

deriving an inverse histogram-based pixel mapping function from said cumulative inverse histogram; and

applying the inverse histogram-based pixel mapping function to a set of image pixels.

7,515,765	Image sharpness management	Apple Inc.	MacDonald; Lindsay William | Bouzit; Samira	382	G06K	20040818	2	93%	☐

Abstract: Methods, media, and a system provide image sharpness management for electronic images. Pixel values for an unmodified image are processed relative to spatial frequency bands for that image. An average pixel value is acquired for each of the spatial frequency bands and used to alter the corresponding pixel value of the image. A resulting modified image exhibits enhancement of sharpness, based on adjustments for each of the spatial frequency bands. In one embodiment, the average pixel value is adjusted based on an expected viewing distance of an observer. In another embodiment, the average pixel value is adjusted based on the ability of a display device to reproduce spatial frequencies in the image.
MainClaim: A method comprising: using at least one processor to perform steps, comprising, transforming an image into a plurality of spatial frequency bands; calculating average values for each of the spatial frequency bands; weighting each of the spatial frequency bands by a Modulation Transfer Function (MTF) ratio value; and after said weighting, adjusting a relative amplitude of different ones of the spatial frequency bands to generate a modified image using an adjustment value associated with the average values.

2008/0088858	System and Method for Processing Images Using Predetermined Tone Reproduction Curves	APPLE INC.	Marcu; Gabriel G. | Zimmer; Mark | Hayward; David	358	G06F	20070601	6	92%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. When automatically processing, a predetermined tone reproduction curve is applied to the interpolate RAW image to produce the resulting image. The predetermined tone reproduction curve is derived from a plurality of reference images and is selected based on the metadata associated with the RAW image. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:storing a plurality of predetermined tone curves;interpolating a RAW image to produce an interpolated image;determining based on metadata associated with the RAW image which one or more of the predetermined tone curves to apply;applying the one or more predetermined tone curves to the interpolated image to produce a resulting image; andmaking the resulting image available to an application executing on the processing device.

2008/0088857	System and Method for RAW Image Processing	APPLE INC.	Zimmer; Mark | Hayward; David | Marcu; Gabriel G.	358	G06K	20070601	6	92%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:receiving a representation of a RAW image;producing a resulting image in a color space by automatically pre-processing the RAW image with an operating system service of the processing device;providing an interface to the operation system service; andmaking the resulting image available via the interface to an application program executable on the processing device.

7,289,667	Method and apparatus for enhancing a digital image by applying an inverse histogram-based pixel mapping function to pixels of the digital image	Nokia Corporation	Nenonen; Petri | Vehvilainen; Markku	382	G06K	20041004	0	100%	☐

Abstract: A method and associated device wherein an inverse histogram based pixel mapping step is combined with an edge enhancement step such as unsharp masking. In such an arrangement the inverse histogram based pixel mapping step improves the performance of the unsharp masking step, serving to minimize the enhancement of noise components while desired signal components are sharpened.
MainClaim: A method for enhancing a digital image which includes a plurality of image pixels each being represented by a pixel value, said method comprising: applying an inverse histogram-based pixel mapping function to at least a set of image pixels of said image pixels, wherein the inverse histogram-based pixel mapping function modifies pixel values of the set of image pixels in accordance with their frequency of occurrence such that a contrast of the digital image is reduced for image pixels that have values with a frequency of occurrence exceeding a pre-determined amount.

2008/0088857	System and Method for RAW Image Processing	APPLE INC.	Zimmer; Mark | Hayward; David | Marcu; Gabriel G.	358	G06K	20070601	6	92%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:receiving a representation of a RAW image;producing a resulting image in a color space by automatically pre-processing the RAW image with an operating system service of the processing device;providing an interface to the operation system service; andmaking the resulting image available via the interface to an application program executable on the processing device.

2008/0088858	System and Method for Processing Images Using Predetermined Tone Reproduction Curves	APPLE INC.	Marcu; Gabriel G. | Zimmer; Mark | Hayward; David	358	G06F	20070601	6	92%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. When automatically processing, a predetermined tone reproduction curve is applied to the interpolate RAW image to produce the resulting image. The predetermined tone reproduction curve is derived from a plurality of reference images and is selected based on the metadata associated with the RAW image. The resulting

image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:storing a plurality of predetermined tone curves;interpolating a RAW image to produce an interpolated image;determining based on metadata associated with the RAW image which one or more of the predetermined tone curves to apply;applying the one or more predetermined tone curves to the interpolated image to produce a resulting image; andmaking the resulting image available to an application executing on the processing device.

6,437,711	Segmentation mechanism for a block encoder and method for encoding with a block encoder	Nokia Networks Oy	Nieminen; Esko | Pirttiaho; Lauri	341	H03M	20001214	0	100%	☐

Abstract: A method encodes an input data block with a block encoder. The block encoder is capable of processing consecutive coding blocks whose size has an upper limit which is smaller than the size of the input data block. The method comprises: determining the length of the input data block before encoding any of its data with the block encoder; dividing the input data block to a plurality of segments wherein all segments are of substantially equal size and no segment is larger than the upper limit; and processing each segment with the block encoder. If the last segment is shorter than the remaining segments, fill bits can be added to the last segment such that its length equals that of the remaining segments.
MainClaim: A method for encoding an input data block with a block encoder, the block encoder being capable of processing consecutive coding blocks whose size has an upper limit which is smaller than the size of the input data block, the method comprising:

determining the length of the input data block before encoding any of its data with the block encoder;

dividing the input data block into a plurality of segments wherein all segments are of substantially equal size and no segment is larger than the upper limit; and

processing each segment with the block encoder.

2010/0117875	SYSTEM AND METHOD FOR COMPRESSING A STREAM OF INTEGER-VALUED DATA	APPLE INC.	Oslick; Mitchell Howard	341	H03M	20081110	2	92%	☐

Abstract: A method and system are provided to minimize the size and complexity of bitstreams associated with encoded data by using a new compression scheme. An entropy encoder receives a list of run/data value pairs and entropy encodes separately the runs and data values, selecting their codewords according to length and magnitude, respectively, and catenates the resulting codeword pairs--run codeword first--in an encoded bitstream.
MainClaim: A method for entropy coding run/data value pair data corresponding to a stream of integer-valued data, said method comprising:classifying each run based on its length;if the run is 1, selecting a first code with a length of 1;if the run is classified as short, selecting a first code with a first predetermined length, each first code of first predetermined length having a preamble to distinguish the other run classifications, and having a value based on the run's length;if the run is classified as long, selecting a first code with a second predetermined length, each first code of second predetermined length having a preamble to distinguish the other run classifications, and having a value based on the run's length; andoutputting the selected first code to a channel.

7,728,844	Restoration of color components in an image model	Nokia Corporation	Trimeche; Mejdi | Vehvilainen; Markku	345	G09G	20040709	0	100%	☐

Abstract: This invention relates to a method for improving image quality of a digital image captured with an imaging module comprising at least imaging optics and an image sensor, where the image is formed through the imaging optics, the image consisting of at least one color component. In the method degradation information of each color component of the image is found and is used for obtaining a degradation function. Each color component is restored by said degradation function. The image is unprocessed image data, and the degradation information of each color component can be found by a point-spread function. The invention also relates to a device, to a module, to a system and to a computer program product and to a program module.
MainClaim: A method comprising: finding degradation information of each colour component of a digital image captured with an imaging module comprising at least imaging optics and an image sensor, where the image is formed through the imaging optics, said image comprising at least one colour component, obtaining a degradation function according to the degradation information, restoring said each colour component by said degradation function, wherein the restoring of said each colour component is performed iteratively by iteratively applying the degradation function using an adapted step size in said iterative restoring, wherein the adapted step size is a function of a local saturation control that modulates a global step size, and applying a regularization control to each restored colour component, wherein the regularization control limits the restoration effect near regions of the digital image containing pixels that are saturated for a colour component.

7,515,765	Image sharpness management	Apple Inc.	MacDonald; Lindsay William | Bouzit; Samira	382	G06K	20040818	2	94%	☐

Abstract: Methods, media, and a system provide image sharpness management for electronic images. Pixel values for an unmodified image are processed relative to spatial frequency bands for that image. An average pixel value is acquired for each of the spatial frequency bands and used to alter the corresponding pixel value of the image. A

resulting modified image exhibits enhancement of sharpness, based on adjustments for each of the spatial frequency bands. In one embodiment, the average pixel value is adjusted based on an expected viewing distance of an observer. In another embodiment, the average pixel value is adjusted based on the ability of a display device to reproduce spatial frequencies in the image.
MainClaim: A method comprising: using at least one processor to perform steps, comprising, transforming an image into a plurality of spatial frequency bands; calculating average values for each of the spatial frequency bands; weighting each of the spatial frequency bands by a Modulation Transfer Function (MTF) ratio value; and after said weighting, adjusting a relative amplitude of different ones of the spatial frequency bands to generate a modified image using an adjustment value associated with the average values.

7,636,467	Binarization of an image	Nokia Corporation	Burian; Adrian | Vehvilainen; Markku	382	G06K	20050729	0	100%	☐

Abstract: For binarizing an image, which is composed of pixels, the image is split into two semi-images. Local parameters are initialized based on values of pixels that lie in an area adjacent to a boundary separating the semi-images. A binarization is then performed separately for each of the semi-images using an adaptive threshold, wherein the adaptive threshold is calculated for each of the semi-images proceeding from the initialized local parameters.
MainClaim: A method comprising: splitting an image composed of pixels into two semi-images; initializing local parameters based on values of pixels that lie in an area adjacent to both sides of a boundary separating said semi-images; calculating an adaptive threshold for each of said semi-images proceeding from said initialized local parameters; and performing a binarization separately for each of said semi-images using said adaptive threshold, wherein said binarization of said semi-images results in a binarized image of said image.

2008/0088857	System and Method for RAW Image Processing	APPLE INC.	Zimmer; Mark | Hayward; David | Marcu; Gabriel G.	358	G06K	20070601	6	93%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:receiving a representation of a RAW image;producing a resulting image in a color space by automatically pre-processing the RAW image with an operating system service of the processing device;providing an interface to the operation system service; andmaking the resulting image available via the interface to an application program executable on the processing device.

2008/0088858	System and Method for Processing Images Using Predetermined Tone Reproduction Curves	APPLE INC.	Marcu; Gabriel G. | Zimmer; Mark | Hayward; David	358	G06F	20070601	6	93%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. When automatically processing, a predetermined tone reproduction curve is applied to the interpolate RAW image to produce the resulting image. The predetermined tone reproduction curve is derived from a plurality of reference images and is selected based on the metadata associated with the RAW image. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:storing a plurality of predetermined tone curves;interpolating a RAW image to produce an interpolated image;determining based on metadata associated with the RAW image which one or more of the predetermined tone curves to apply;applying the one or more predetermined tone curves to the interpolated image to produce a resulting image; andmaking the resulting image available to an application executing on the processing device.

7,197,456	On-line parametric histogram normalization for noise robust speech recognition	Nokia Corporation	Haverinen; Hemmo | Kiss; Imre	704	G10L	20020430	0	100%	☐

Abstract: A method for improving noise robustness in speech recognition, wherein a front-end is used for extracting speech feature from an input speech and for providing a plurality of scaled spectral coefficients. The histogram of the scaled spectral coefficients is normalized to the histogram of a training set using Gaussian approximations. The normalized spectral coefficients are then converted into a set of cepstrum coefficients by a decorrelation module and further subjected to ceptral domain feature-vector normalization.
MainClaim: A method, comprising: providing in a speech recognition system speech data indicative of an input speech at a plurality of time instants based on the input speech, the speech data comprising a plurality of data segments; spectrally converting the data segments into a plurality of spectral coefficients having a probability distribution of values in spectral domain for providing spectral data indicative of the spectral coefficients based on the data segments; obtaining a parametric representation of the probability distribution of values of the spectral coefficients based on the spectral data; modifying the parametric representation based on one or more reference values for providing a modified parametric representation; adjusting at least one of the spectral coefficients in the spectral domain based on the modified parametric representation for changing the spectral data; and performing decorrelation conversion on the changed spectral data for providing extracted features of the input speech.

	Global boundary-centric feature								

7,643,990	extraction and associated discontinuity metrics	Apple Inc.	Bellegarda; Jerome R.	704	G10L	20031023	1	93%	☐

Abstract: Portions from time-domain speech segments are extracted. Feature vectors that represent the portions in a vector space are created. The feature vectors incorporate phase information of the portions. A distance between the feature vectors in the vector space is determined. In one aspect, the feature vectors are created by constructing a matrix W from the portions and decomposing the matrix W. In one aspect, decomposing the matrix W comprises extracting global boundary-centric features from the portions. In one aspect, the portions include at least one pitch period. In another aspect, the portions include centered pitch periods.
MainClaim: A machine-implemented method comprising: i. extracting, via a microprocessor, portions from speech segments, the portions surrounding a segment boundary within a phoneme; ii. identifying time samples from the portions; iii. constructing a matrix W containing first data corresponding to the time samples from the portions surrounding the segment boundary within the phoneme and second data corresponding to the portions; iv. deriving feature vectors that represent the portions in a vector space by decomposing the matrix W containing the first data corresponding to the time samples from the portions surrounding the segment boundary within the phoneme and the second data corresponding to the portions; and v. determining a distance between the feature vectors in the vector space.

6,772,117	Method and a device for recognizing speech	Nokia Mobile Phones Limited	Laurila; Kari | Viikki; Olli	704	G10L	19980409	0	100%	☐

Abstract: In a speech recognition method and apparatus, according to the present invention, feature vectors produced by an analysing unit of a speech recognition device are modified for compensating the effects of noise. According to the invention, feature vectors are normalized using a sliding normalization buffer (31). By means of the method according to the invention, the performance of the speech recognition device improves in situations, wherein the speech recognition device's training phase has been carried out in a noise environment that differs from the noise environment of the actual speech recognition phase.
MainClaim: A method for recognising speech, wherein a recognisable speech signal is divided in time into successive frames of specific length, each speech frame is analysed for producing at least one parameter per frame, illustrating the speech signal, said parameters, relating to each frame, are stored in a sliding buffer for minimizing the delay due to the normalization process for calculation of normalisation coefficients for each frame, said parameters are modified utilising said normalisation coefficients and speech recognition is carried out utilising the modified parameters, wherein only part of the successive parameters are stored periodically and at least one parameter is modified on the basis of the parameters stored periodically in order to produce said modified parameter, and for said modification, a standard deviation of said periodically stored parameters is defined, wherein only part of the stored parameters are used at the beginning of the speech recognition.

6,697,779	Combined dual spectral and temporal alignment method for user authentication by voice	Apple Computer, Inc.	Bellegarda; Jerome | Naik; Devang | Neeracher; Matthias | Silverman; Kim	704	G10L	20000929	1	93%	☐

Abstract: A method and system for training a user authentication by voice signal are described. In one embodiment, during training, a set of all spectral feature vectors for a given speaker is globally decomposed into speaker-specific decomposition units and a speaker-specific recognition unit. During recognition, spectral feature vectors are locally decomposed into speaker-specific characteristic units. The speaker-specific recognition unit is used together with selected speaker-specific characteristic units to compute a speaker-specific comparison unit. If the speaker-specific comparison unit is within a threshold limit, then the voice signal is authenticated. In addition, a speaker-specific content unit is time-aligned with selected speaker-specific characteristic units. If the alignment is within a threshold limit, then the voice signal is authenticated. In one embodiment, if both thresholds are satisfied, then the user is authenticated.
MainClaim: A method of training a user authentication by voice signal, the user authentication based on measuring diagonality deviations, the method comprising:

globally decomposing a set of a plurality of feature vectors into at least one speaker-specific decomposition unit; and

computing a speaker-specific recognition unit from the at least one speaker-specific decomposition unit for subsequent derivation of the diagonality deviations.

7,394,930	Automatic white balancing of colour gain values	Nokia Corporation	Trimeche; Mejdi | Vehvilainen; Markku	382	G06K	20050107	0	100%	☐

Abstract: A method and an related apparatus for performing a white balance operation on an image with pixels, wherein global colour gain values common for substantially all pixels of the image are first determined. Then local colour gain values for individual pixels of the image are determined based on analyses of a local window comprising said individual pixel and a number of adjacent pixels. Thereafter, final colour gain values for individual pixels of the image are determined as a weighted average of the global and the local colour gain values, and a white balance operation is performed on the image using the final colour gain values.
MainClaim: A method for performing a white balance operation on an image with pixels, the method comprising: determining global colour gain values common for substantially all pixels of the image; determining local colour gain values for individual pixels of the image based on analyses of a local window comprising said individual pixel and a number of adjacent pixels; determining final colour gain values for individual pixels of the image as a weighted average of the global and the local colour gain values; and performing a white balance operation on the image using the final colour gain values.

	System and Method		Zimmer; Mark |					

2008/0088857	for RAW Image Processing	APPLE INC.	Hayward; David | Marcu; Gabriel G.	358	G06K	20070601	6	95%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:receiving a representation of a RAW image;producing a resulting image in a color space by automatically pre-processing the RAW image with an operating system service of the processing device;providing an interface to the operation system service; andmaking the resulting image available via the interface to an application program executable on the processing device.

2008/0088858	System and Method for Processing Images Using Predetermined Tone Reproduction Curves	APPLE INC.	Marcu; Gabriel G. | Zimmer; Mark | Hayward; David	358	G06F	20070601	6	95%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. When automatically processing, a predetermined tone reproduction curve is applied to the interpolate RAW image to produce the resulting image. The predetermined tone reproduction curve is derived from a plurality of reference images and is selected based on the metadata associated with the RAW image. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:storing a plurality of predetermined tone curves;interpolating a RAW image to produce an interpolated image;determining based on metadata associated with the RAW image which one or more of the predetermined tone curves to apply;applying the one or more predetermined tone curves to the interpolated image to produce a resulting image; andmaking the resulting image available to an application executing on the processing device.

7,505,950	Soft alignment based on a probability of time alignment	Nokia Corporation	Tian; Jilei | Nurminen; Jani | Popa; Victor	706	G06F	20060426	0	100%	☐

Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.
MainClaim: A method comprising: receiving a first sequence of feature vectors associated with a source speaker for processing based on operations controlled by a processor; receiving a second sequence of feature vectors associated with a target speaker; generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are time aligned to the same feature in their respective sequences; and applying the third sequence of joint feature vectors as a part of a voice conversion process.

7,720,673	Method for dynamic context scope selection in hybrid N-GRAM+LSA language modeling	Apple Inc.	Bellegarda; Jerome R.	704	G06F	20070223	3	93%	☐

Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.
MainClaim: A method of language modeling of a document comprising: computing, by a computer processor, a plurality of local probabilities of a current document; determining a vector representation of the current document in a latent semantic analysis (LSA) space at a first time based on a first number of words present in the current document from a second time to the first time, wherein the second time precedes the first time; computing, by a computer processor, a plurality of global probabilities based upon the vector representation of the current document in an LSA space; and combining the local probabilities and the global probabilities to produce a language modeling.

7,106,944	System and method for jumping to a timepoint in a MPEG file	Nokia Corporation	Graan; Hans	386	H04N	20010627	0	100%	☐

Abstract: A system and method for performing seek or jump functions in a digitally stored audiovisual file are described. When the audiovisual file is recorded onto a storage medium, headers, which are distinct and separable from the audiovisual file datastream, are set in the audiovisual file in the storage medium. Each header contains a timestamp. When jumping/seeking, an estimated position for the desired timepoint on the storage medium is calculated by multiplying the storage unit per time unit rate by the desired timepoint. Then the system and method jumps to the estimated position, where the timestamp in the nearest header is checked to determine whether the time it indicates is close enough to the desired timepoint. If it is not, a new estimated position is calculated and the method repeats until

either an iteration limit is reached or the estimated position is determined to be close enough to the desired timepoint.
MainClaim: A method for performing a jump function to a desired timepoint in a digital audiovisual file comprising: a) when storing the audiovisual file to a storage medium: adding recording headers in the audiovisual file on the storage medium, wherein the recording headers are distinct from a datastream of the audiovisual file; and setting a timestamp in each recording header; b) calculating an estimated storage position on the storage medium of the desired timepoint; c) jumping to the estimated storage position; d) finding a recording header near the estimated storage position; e) reading a timestamp in the recording header; f) determining if a timepoint indicated by the timestamp is within a predetermined time of the desired timepoint; and g) if the indicated timepoint is not within the predetermined time: re-calculating an estimated storage position; and repeating steps (c) through (g).

2008/0065393	Playback of compressed media files without quantization gaps	Apple Computer, Inc.	Kincaid; William S.	704	G10L	20060911	1	93%	☐

Abstract: Playback by a decoder of a lossy compressed digital media file without quantization gaps, wherein the digital media file is formed of a number of audio samples grouped into a corresponding number of audio frames. As a method, the invention is carried out by identifying an encoder used to compress the digital media file; obtaining an encoder delay value for the identified encoder; obtaining a decoder delay value for the decoder; determining a audio sample count corresponding to a last valid audio sample; setting a re-synchronization after seek option marker N audio frames from the last valid audio sample; and decoding only valid audio samples using the encoder delay value, the decoder delay value, and the sample count corresponding to the last valid audio sample.
MainClaim: A method of playback by a decoder of a lossy compressed digital media file without quantization gaps, wherein the digital media file is formed of a number of audio samples grouped into a corresponding number of audio frames, comprising:identifying an encoder used to compress the digital media file;obtaining an encoder delay value for the identified encoder;obtaining a decoder delay value for the decoder;determining a audio sample count corresponding to a last valid audio sample;setting a re-synchronization after seek option marker N audio frames from the last valid audio sample; anddecoding only valid audio samples using the encoder delay value, the decoder delay value, and the sample count corresponding to the last valid audio sample.

7,352,896	Method for interpolation and sharpening of images	Nokia Corporation	Rantanen; Henry | Kalevo; Ossi	382	G06K	20031014	0	100%	☐

Abstract: A method, a system, a device, a storage means, and a computer software product for sharpening colours in an image, in which a first colour component is interpolated and sharpened in such a way that the effect of the colour component is computed in different directions, the highest and/or lowest value of the computed values is selected to represent the greatest and/or smallest change, after which the colour component is sharpened, if the ratio between the highest and lowest values falls within predetermined limit values. The second colour component is sharpened on the basis of the sharpening of said first colour component. After the sharpening, the second colour component is interpolated, wherein the result is a sharpened and interpolated three-colour image.
MainClaim: A method comprising: locating pixels comprising information of a first colour component of an image at least partly in locations different from the pixels comprising information of a second colour component of said image; interpolating said first colour component and said second colour component; sharpening at least said first colour component by: computing the change of the first colour component in at least two different directions to obtain at least two original change values, selecting at least a maximum value and a minimum value to obtain at least two change values based on said at least two original change values, and determining a ratio based on said change values; and controlling the sharpening of said second colour component based on the sharpening of said first colour component.

2008/0088858	System and Method for Processing Images Using Predetermined Tone Reproduction Curves	APPLE INC.	Marcu; Gabriel G. | Zimmer; Mark | Hayward; David	358	G06F	20070601	6	94%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. When automatically processing, a predetermined tone reproduction curve is applied to the interpolate RAW image to produce the resulting image. The predetermined tone reproduction curve is derived from a plurality of reference images and is selected based on the metadata associated with the RAW image. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:storing a plurality of predetermined tone curves;interpolating a RAW image to produce an interpolated image;determining based on metadata associated with the RAW image which one or more of the predetermined tone curves to apply;applying the one or more predetermined tone curves to the interpolated image to produce a resulting image; andmaking the resulting image available to an application executing on the processing device.

2008/0088857	System and Method for RAW Image Processing	APPLE INC.	Zimmer; Mark | Hayward; David | Marcu; Gabriel G.	358	G06K	20070601	6	94%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:receiving a representation of a RAW image;producing a resulting image in a color space by automatically

pre-processing the RAW image with an operating system service of the processing device;providing an interface to the operation system service; andmaking the resulting image available via the interface to an application program executable on the processing device.

7,616,811	Method and system in a digital image processing chain for adjusting a colour balance, corresponding equipment, and software means for implementing the method	Nokia Corporation	Kalevo; Ossi | Nenonen; Petri	382	G06K	20040909	0	100%	☐

Abstract: A method in a digital image processing chain adjusts for a colour balance. In the method, the subject is imaged by pixels to form value-sets of the colour components, component-specific histograms are formed from the value-sets of the colour components, cumulative histograms are formed from the component-specific histograms, the illumination colour corresponding to at least one colour component is defined from the cumulative histograms, and using target colour and defined illumination colour are defined for at least two colour components, a gain factor adjusts the colour balance. In addition, a corresponding system, equipment, and software means implement the method.
MainClaim: A method in a digital image processing chain in a device for adjusting a colour balance comprising: inputting to the device value-sets of colour components R, G, B which have been formed by imaging a subject by pixels, forming component-specific histograms from the value-sets of the colour components, forming cumulative histograms from the component-specific histograms, defining an illumination colour corresponding to at least one colour component from the cumulative histograms, defining a gain factor adjusting the colour balance for at least two colour components using a target colour and the defined illumination colour, defining from an essentially flat area of a colour curve at the ends of the cumulative histograms a common point h_i, at which colour-component wise pixel-intensity values C_i, C_i+1, corresponding to consecutive points h_i, h_i+1, meet criteria conditions set for at least one colour component defined from the essentially flat area of the colour curve at the ends of the cumulative histograms, and setting the colour-component wise intensity value C_i, corresponding to a common point h_i for the at least one colour component to correspond to the illumination colour.

2008/0088858	System and Method for Processing Images Using Predetermined Tone Reproduction Curves	APPLE INC.	Marcu; Gabriel G. | Zimmer; Mark | Hayward; David	358	G06F	20070601	6	94%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. When automatically processing, a predetermined tone reproduction curve is applied to the interpolate RAW image to produce the resulting image. The predetermined tone reproduction curve is derived from a plurality of reference images and is selected based on the metadata associated with the RAW image. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:storing a plurality of predetermined tone curves;interpolating a RAW image to produce an interpolated image;determining based on metadata associated with the RAW image which one or more of the predetermined tone curves to apply;applying the one or more predetermined tone curves to the interpolated image to produce a resulting image; andmaking the resulting image available to an application executing on the processing device.

2008/0088857	System and Method for RAW Image Processing	APPLE INC.	Zimmer; Mark | Hayward; David | Marcu; Gabriel G.	358	G06K	20070601	6	94%	☐

Abstract: An automated RAW image processing method and system are disclosed. A RAW image and metadata related to the RAW image are obtained from a digital camera or other source. The RAW image and the related metadata are automatically processed using an Operating System service of a processing device to produce a resulting image in an absolute color space. The resulting image is then made available to an application program executing on the processing device through an application program interface with the Operating System service.
MainClaim: An automated RAW image processing method implementable by a processing device, the method comprising:receiving a representation of a RAW image;producing a resulting image in a color space by automatically pre-processing the RAW image with an operating system service of the processing device;providing an interface to the operation system service; andmaking the resulting image available via the interface to an application program executable on the processing device.

7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren | Koumpis; Konstantinos	704	G10L	20011219	0	100%	☐

Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.
MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the

models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.

6,778,952	Method for dynamic context scope selection in hybrid N-gram+LSA language modeling	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G06F	20020912	2	95%	☐

Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.
MainClaim: A method comprising:

computing a plurality of global probabilities of an input word based on a context having a dynamic scope determined by discounting words observed prior to the input word according to an exponential function, the context represented by a vector in a latent semantic analysis (LSA) space, wherein the vector representation is generated from at least one decomposition matrix of a singular value decomposition of a co-occurrence matrix, W, between M words in a vocabulary V and N documents in a text corpus T and wherein the vector representation v_q at time q is defined as ##EQU6##

where n_q is the number of words observed up to time q, n_p is the number of words observed up to time p, i_p is the index of the word observed at time p, εi_p is the normalized entropy of the word observed at time p within T, $0<\lambda\leq 1$, ui_p is the left singular vector at time p of the singular value decomposition of W, and S is the diagonal matrix of singular values of the singular value decomposition of W;

computing a plurality of local probabilities of the input word; and

combining the local probabilities and the global probabilities to produce a language model probability for the input word.

7,720,673	Method for dynamic context scope selection in hybrid N-GRAM+LSA language modeling	Apple Inc.	Bellegarda; Jerome R.	704	G06F	20070223	3	95%	☐

Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.
MainClaim: A method of language modeling of a document comprising: computing, by a computer processor, a plurality of local probabilities of a current document; determining a vector representation of the current document in a latent semantic analysis (LSA) space at a first time based on a first number of words present in the current document from a second time to the first time, wherein the second time precedes the first time; computing, by a computer processor, a plurality of global probabilities based upon the vector representation of the current document in an LSA space; and combining the local probabilities and the global probabilities to produce a language modeling.

6,785,652	Method and apparatus for improved duration modeling of phonemes	Apple Computer, Inc.	Bellegarda; Jerome R. | Silverman; Kim	704	G10L	20021219	1	95%	☐

Abstract: A method and an apparatus for improved duration modeling of phonemes in a speech synthesis system are provided. According to one aspect, text is received into a processor of a speech synthesis system. The received text is processed using a sum-of-products phoneme duration model that is used in either the formant method or the concatenative method of speech generation. The phoneme duration model, which is used along with a phoneme pitch model, is produced by developing a non-exponential functional transformation form for use with a generalized additive model. The non-exponential functional transformation form comprises a root sinusoidal transformation that is controlled in response to a minimum phoneme duration and a maximum phoneme duration. The minimum and maximum phoneme durations are observed in training data. The received text is processed by specifying at least one of a number of contextual factors for the generalized additive model. An inverse of the non-exponential functional transformation is applied to duration observations, or training data. Coefficients are generated for use with the generalized additive model. The generalized additive model comprising the coefficients is applied to at least one phoneme of the received text resulting in the generation of at least one phoneme having a duration. An acoustic sequence is generated comprising speech signals that are representative of the received text.
MainClaim: A method comprising:

identifying a non-exponential functional transformation that defines a shape containing an inflection point, wherein the functional transformation comprises a root sinusoidal transformation; and

incorporating the functional transformation into a generalized additive model for modeling phoneme durations.

7,574,411	Low memory	Nokia Corporation	Suontausta;	706	G06N	20040429	0	100%	☐

	decision tree		Janne | Tian; Jilei						

Abstract: Management of a low memory treelike data structure is shown. The method according to the invention comprises steps for creating a decision tree including a parent node and at least one leaf node, and steps for searching data from said nodes. The nodes of the decision tree are stored sequentially in such a manner that nodes follow the parent node in storage order, wherein the nodes refining the context of the searchable data can be reached without a link from their parent node. The method can preferably be utilized in speech-recognition systems, in text-to-phoneme mapping.
MainClaim: A method comprising: creating a decision tree for pronunciation modelling application for efficient representation in an electronic memory of an electronic device, said decision tree comprising a parent node and at least one leaf node, said creating the decision tree further including arranging said nodes in the decision tree such that said nodes comprise at least one datum that has been coded according to a coding method that provides minimum bits for said datum, said at least one datum corresponding to a phoneme in a specific context, the specific context being defined by at least one data of a parent node also corresponding to a phoneme, mapping the nodes of said decision tree sequentially to an array in such a manner that nodes follow the parent node in storage order without a link from their parent node, and mapping the array to a memory structure stored in a computer readable medium to be used for text-to-phoneme translation.

7,720,673	Method for dynamic context scope selection in hybrid N-GRAM+LSA language modeling	Apple Inc.	Bellegarda; Jerome R.	704	G06F	20070223	3	92%	☐

Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.
MainClaim: A method of language modeling of a document comprising: computing, by a computer processor, a plurality of local probabilities of a current document; determining a vector representation of the current document in a latent semantic analysis (LSA) space at a first time based on a first number of words present in the current document from a second time to the first time, wherein the second time precedes the first time; computing, by a computer processor, a plurality of global probabilities based upon the vector representation of the current document in an LSA space; and combining the local probabilities and the global probabilities to produce a language modeling.

7,191,118	Method for dynamic context scope selection in hybrid N-gram+LSA language modeling	Apple, Inc.	Bellegarda; Jerome R.	704	G06F	20040812	1	92%	☐

Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.
MainClaim: A method of dynamic language modeling of a document comprising: computing a plurality of local probabilities of a current document; determining a vector representation of the current document in a latent semantic analysis (LSA) space, wherein the current document has a dynamic scope determined by discounting previously observed words according to an exponential function; computing a plurality of global probabilities based upon the vector representation of the current document in an LSA space; and combining the local probabilities and the global probabilities to produce the language modeling.

7,728,785	Loop antenna with a parasitic radiator	Nokia Corporation	Ozden; Sinasi	343	H01Q	20060207	0	100%	☐

Abstract: It is an objective of the present invention to provide an antenna construction that allows the thickness of an antenna structure be lower than that of planar antennas according to prior art without sacrificing the radiation efficiency at the desired RF-bands as 900 MHz GSM and 1800 MHz/1900 MHz DCS/PCS. A further object of the invention is to provide an antenna construction that is insensitive to changes in positions of electrically conductive objects in the vicinity. The objectives of the invention are achieved by a loop antenna structure equipped with an electrically conductive parasitic radiator that is electro-magnetically coupled with the antenna loop. Performance at the DCS/PCS bands can be further improved by using an electrically conductive tuner element that provides a stronger electromagnetic coupling between the antenna loop and the parasitic radiator.
MainClaim: An antenna arrangement comprising: a first electrical terminal and a second electrical terminal, an electrical conductor forming an antenna loop having at least one electrically conductive path extending from the first electrical terminal to the second electrical terminal, the antenna loop being configured to operate as a loop antenna, an electrically conductive parasitic radiator in a substantially co-planar arrangement with the antenna loop, the electrically conductive parasitic radiator being arranged to couple with the antenna loop, said electrically conductive parasitic radiator having a length that is approximately one quarter of a wavelength at an operating frequency, and an electrically conductive tuner element in the vicinity of the antenna loop and the electrically conductive parasitic radiator, the distance between the electrically conductive tuner element and the antenna loop being at a distance to increase capacitive coupling between the antenna loop and the parasitic radiator.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald;	343	H01Q	20071218	44	96%	☐

			Matthew Ian						
7,339,528	Antenna for mobile communication terminals	Nokia Corporation	Wang; Hanyang | Williams; Stuart	343	H01Q	20041221	0	100%	☐

Abstract: An antenna including: a first substantially planar ground plate; a first substantially planar resonator positioned in a plane substantially parallel to the first ground plate; a second substantially planar ground plate positioned in a plane substantially parallel to the first ground plate; two or more connectors for electrically connecting the second ground plate to ground; and one or more connectors for electrically connecting the first resonator to the second ground plate; wherein the first resonator and the second ground plate are connected to at least one of receiver means and transmitter means by antenna feeding means.
MainClaim: An antenna comprising: a first substantially planar ground plate; a first substantially planar resonator positioned in a plane substantially parallel to the first ground plate; a second substantially planar ground plate positioned in a plane substantially parallel to the first ground plate; two or more connectors for electrically connecting the second ground plate to the first ground plate; and one or more connectors for electrically connecting the first resonator to the second ground plate; wherein: the first resonator and the second ground plate are connected to at least one of receiver means and transmitter means by antenna feeding means; the first resonator and the second ground plate each have similar dimensions; wherein the first resonator is substantially aligned with the second ground plate; and the second ground plate is positioned between the first ground plate and the first resonator.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	96%	☐
5,680,144	Wideband, stacked double C-patch antenna having gap-coupled parasitic elements	Nokia Mobile Phones Limited	Sanad; Mohamed	343	H01Q	19960313	0	100%	☐

Abstract: A stacked, shorted double C-patch antenna (100) has gap-coupled parasitic elements (102a, 106a, 102b, 106b) and one directly fed antenna element (104a). A second fed element (104b) is conductively fed from the directly fed element. The antenna has a truncated ground plane (108) and a bandwidth that is equal to or greater than approximately 70 MHz at a frequency of approximately 850 MHz. The directly fed antenna element is conductively coupled to a transmitter and to a receiver of a communications device, such as a cellular telephone.
MainClaim: A stacked, shorted double C-patch antenna comprising a first antenna element assembly comprised of at least one gap-coupled parasitic element and one directly fed antenna element, said stacked, shorted double C-patch antenna further comprising a second antenna element assembly comprised of at least one gap-coupled parasitic element and one antenna element that is conductively fed from said directly fed antenna element, said first antenna element assembly being disposed in a spaced-apart fashion from said second antenna element assembly by an intervening layer of dielectric material, said antenna having a truncated ground plane and a bandwidth that is equal to or greater than approximately 70 MHz at a frequency of approximately 850 MHz.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	97%	☐
7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	94%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,551,142	Hybrid antennas with directly fed antenna slots for	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W.	343	H01Q	20071213	8	93%	☐

	handheld electronic devices		| Zavala; Juan | Caballero; Ruben						

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.
MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

7,274,340	Quad-band coupling element antenna structure	Nokia Corporation	Ozden; Sinasi | Nielsen; Bjarne K. | Jorgensen; Claus H. | Villanen; Juha | Icheln; Clemens | Vainikainen; Pertti	343	H01Q	20051228	0	100%	☐

Abstract: An antenna module has a substrate, first and second coupling elements, and first and second resonant circuits disposed on the substrate. The first and second coupling elements are mounted to the substrate and particularly adapted to couple respective first and second frequency bands to a ground plane through respective first and second ports. The first resonant circuit has a plurality of components having electrical values selected so as to function as a band-pass filter within the first frequency band and to present a high impedance at least in the second frequency band. The second resonant circuit is coupled to the second port and has a plurality of components that have electrical values selected so as to function as a band-pass filter within the second frequency band and to present a high impedance at least in the first frequency band.
MainClaim: An antenna module comprising: a substrate; a first coupling element mounted to the substrate and particularly adapted to couple a first frequency band to a ground plane through a first port; a second coupling element mounted to the substrate and particularly adapted to couple a second frequency band to a ground plane through a second port; a first resonant matching circuit coupled to the first port and disposed on the substrate, said first matching circuit comprising a plurality of components having electrical values selected so as to function as a band-pass filter within the first frequency band and to present a high impedance at least in the second frequency band; and a second resonant matching circuit coupled to the second port and disposed on the substrate, said second matching circuit comprising a plurality of components having electrical values selected so as to function as a band-pass filter within the second frequency band and to present a high impedance at least in the first frequency band.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	95%	☐
7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	92%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

6,392,605	Antenna for a handset	Nokia Mobile Phones, Limited	Anterow; Aleksis	343	H01Q	20010202	0	100%	☐

Abstract: A dual band antenna device has a first conducting layer acting as resonator plane for the antenna device, a dielectric body on which said first conducting layer is provided and a second conducting layer, that is in substantial parallel with the first conducting layer, and acting as ground plane. The first conducting layer comprises two branches, and both branches will contribute to the matching of the antenna device in both hands.

MainClaim: An antenna device comprising:

a first conducting layer acting as resonator plane for the antenna device;

a second conducting layer, that is substantially parallel with the first conducting layer, and acting as ground plane; and

a dielectric body on which said first conducting layer is provided, said first conducting layer comprising two branches, and both branches contribute to the matching of the antenna device in two frequency bands, wherein a first one of said two branches is quarter-wave resonant in a first one of said two frequency bands, and half-wave resonant in a second one of said two frequency bands; and a second one of said two branches provides a resonant matching in said first one of said two frequency bands, and appears as a quarter-wave resonant stub in said second one of said two frequency bands.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%	☐
6,297,776	Antenna construction including a ground plane and radiator	Nokia Mobile Phones Ltd.	Pankinaho; Ilkka	343	H01Q	20000509	0	100%	☐

Abstract: An antenna construction according to the invention has a radiator, ground plane and at least one matching element. The matching element is capacitively coupled to a ground potential. By varying the number, location and strength of the capacitive coupling of the matching elements the characteristics of the antenna construction, such as the number of resonance frequencies, resonance frequencies and radiator impedance at the feed point can be controlled in a versatile manner.
MainClaim: An antenna construction having a ground plane and a radiator, and having at least one resonance frequency comprising:

at least one matching element at the open end of the antenna construction, said matching element being in a galvanic connection with the radiator such that the capacitive coupling between the matching element and ground plane at the at least one resonance frequency is stronger than the capacitive coupling between the radiator and ground plane.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%	☐
5,627,550	Wideband double C-patch antenna including gap-coupled parasitic elements	Nokia Mobile Phones Ltd.	Sanad; Mohamed	343	H01Q	19950615	0	100%	☐

Abstract: A wide bandwidth, shorted, dual C-patch antenna includes a truncated ground plane, a layer of dielectric material having a first surface overlying the ground plane and an opposing second surface, and an electrically conductive layer overlying the second opposing surface of the dielectric layer. The electrically conductive layer is differentiated into a plurality of antenna elements including a driven antenna element and at least one non-driven, parasitic antenna element. Each of the antenna elements is in the shape of a parallelogram and has one of a rectangular and a non-rectangular (e.g., parabolic, triangular, pentagonal) aperture having a length that extends along a first edge of the electrically conductive layer and a width that extends towards an oppositely disposed second edge. The length has a value that is equal to approximately 20% to approximately 35% of a length of the first edge. The antenna may further include electrically conductive vias or feedthroughs for shorting the electrically conductive layer to the ground plane at a region adjacent to a third edge of the electrically conductive layer. The wide bandwidth antenna may be curved about one or more axes.
MainClaim: An antenna structure, comprising:

a ground plane;

a layer of dielectric material having a first surface overlying said ground plane and an opposing second surface;

an electrically conductive layer overlying said second opposing surface of said dielectric layer, said electrically conductive layer being differentiated into a plurality of antenna elements including a driven antenna element and at least one non-driven, parasitic antenna element, individual ones of said parasitic antenna elements being disposed on opposite sides of said driven antenna element, each of said antenna elements having a shape of a parallelogram and having a first radiating aperture having a length that extends along a first edge of said electrically conductive layer and a width that extends towards an oppositely disposed second edge, said electrically conductive layer further having a second radiating aperture having a length that extends along said first edge of said electrically conductive layer and a width that extends towards said oppositely disposed second edge, said first and second radiating apertures having a zero potential plane

disposed therebetween; and

means for coupling at least one of radio frequency energy into and out of said electrically conductive layer of said driven antenna element, said coupling means being located within said zero potential plane and further being located nearer to one of said radiating apertures than the other.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	95%	☐
7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	94%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W. | Zavala; Juan | Caballero; Ruben	343	H01Q	20071213	8	93%	☐

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.
MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

7,061,430	Antenna	Nokia Corporation	Zheng; Ming | Shapter; Hugh	343	H01Q	20020627	0	100%	☐

Abstract: An antenna is disclosed. The antenna has a first element including an unbalanced antenna with a feed point, and a second element. The second element has a spaced relationship with the first element, and includes a balanced antenna arranged to be electromagnetically coupled to the first element. Embodiments of the invention exhibit relatively high Pattern Averaged Gain (PAG).
MainClaim: An antenna comprising: a first unbalanced antenna element having a first length in a first direction, a feed point and a first part at which the electric field produced by the first unbalanced antenna element is a maximum and a second part at which the electric field produced by the first unbalanced antenna element is a minimum; a second balanced antenna element having a second length in the first direction, a spaced relationship with the first unbalanced antenna element and a first part at which the electric field produced by the second balanced antenna element is a maximum and a second part at which the electric field produced by the second balanced antenna element is a minimum wherein the first and second parts of the first unbalanced antenna element and the first and second parts of the second balanced antenna element lie within the same plane wherein: a maximum amplitude of an electric field produced by the first unbalanced antenna element and a maximum amplitude of an electric field produced by the second balanced antenna element are in line with a second direction that is substantially perpendicular to the first direction.

	Antennas with		Chiang; Bing | Springer; Gregory Allen | Kough;						

7,705,795	periodic shunt inductors	Apple Inc.	Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	95%	☐
7,119,748	Internal multi-band antenna with planar strip elements	Nokia Corporation	Autti; Marko	343	H01Q	20041231	0	100%	☐

Abstract: An antenna module for use in a small communications device. The antenna module comprises a dielectric block disposed on a circuit board having a ground plane, an elongated planar strip element folded to fit on different surfaces of the dielectric block, and one or more parasitic element disposed adjacent to the antenna element. In particular, the antenna element is designed to produce resonance frequencies at GSM850 and E-GSM900 bands (the lower bands) and one resonance for the GSM1800/GSM1900/WCDMA2100 bands (the upper bands). The dielectric block can be made of soft or hard plastic.
MainClaim: A multiband antenna for use in a communications device operable in a first frequency range and a second frequency range, the second frequency range having higher frequencies two to three times the frequencies in the first frequency range, the communications device having a ground plane, said antenna comprising: a radiative element made substantially of an elongated strip of electrically conductive material, the strip having a first end and a second end, wherein the elongated strip has a first section adjacent to the first end and a second section adjacent to the second end electrically connected to the first section; a feeding point electrically connected to the first end of the radiative element; a grounding point adjacent to the feeding point, for electrically connecting the first end of the radiative element to the ground plane; and a further radiative element having an elongated segment made of electrically conductive material, and a grounding segment electrically connecting the elongated segment to the ground plane, wherein the elongated segment is disposed spaced from the radiative element and adjacent to one of the first and second sections of the elongated strip, and wherein the elongated strip has a length to provide resonance frequencies in the first frequency range, and the elongated strip is shaped such that the second section and the first section lie in axes substantially parallel to one another so that the placement of the second section relative to the first section together with the placement of the elongated segment of the further radiative element relative to the elongated strip provides resonance frequencies in the second frequency range.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
6,469,673	Antenna circuit arrangement and testing method	Nokia Mobile Phones Ltd.	Kaiponen; Teemu	343	H01Q	20010627	0	100%	☐

Abstract: The invention concerns generally the technological field of planar antenna arrangements in portable radio devices. Especially but not exclusively the invention concerns inverted-F antenna arrangements. The invention also concerns a portable radio device equipped with such a planar antenna arrangement. And additionally the invention concerns a method for producing and testing a portable radio device comprising a planar antenna. One idea of the present invention is providing an aperture (322) in the radiator element (316) of the planar antenna. An RF test point (324) is also provided for aligning the RF electronics, and the RF test point is located in such a way related to the aperture of the radiator that the test signal (320) is easily led through the aperture. It is further advantageous that an RF switch (324, 326) is provided for coupling/decoupling a connection between the planar antenna and the RF electronics. In a preferred embodiment the RF switch is integrated with the RF test point. The inventive arrangement thus allows testing the RF electronics after the radiator plate (316) has been attached to the printed wired board (334).
MainClaim: An antenna circuit arrangement, comprising

a planar antenna with a ground plane and a planar radiator element and disposed substantially parallel to the ground plane, and

an RF circuit coupled to the planar antenna for processing RF signals received by the planar antenna and/or RF signals to be transmitted by the antenna, characterized in that

the antenna circuit arrangement comprises a test point for connecting a test signal to/from the RF circuit, and

an aperture in the planar radiator element for conveying said test signal through said aperture.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	93%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground

terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	92%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	92%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

6,515,625	Antenna	Nokia Mobile Phones Ltd.	Johnson; Alan	343	H01Q	20000510	0	100%	☐

Abstract: An antenna comprising an electrical reference plane; a planar conductive element, the electrical reference plane and planar conductive element being electrically coupled via a first coupling means to define a first antenna resonant frequency; and a second coupling means arranged to provide a high impedance path between the electrical reference plane and the planar conductive element at the first resonant frequency and a lower impedance path between the electrical reference plane and planar conductive element at a second frequency to define a second antenna resonant frequency.
MainClaim: In an antenna having an electrical reference plane and a planar conductive element having a length and a width, a system for providing multiple resonant frequencies comprising:

a first coupling means for coupling said electrical reference plane to said planar conductive element at a position on said planar conductive element to define a first antenna resonant frequency;

a second coupling means for coupling said electrical reference plane to said planar conductive element at a position on said planar conductive element to define a second antenna resonant frequency, said second coupling providing a high impedance path between the electrical reference plane and the planar conductive element at the first resonant frequency and a lower impedance path between the electrical reference plane and the planar conductive element at said second resonant frequency; and

wherein the first and second coupling means are spaced apart a distance, said distance being substantially the length of the planar conductive element and causing mutually deflecting currents to flow from each of the two coupling means to define said second resonant frequency.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique |	343	H01Q	20071218	44	96%	☐

			McDonald; Matthew Ian						
6,556,812	Antenna coupler and arrangement for coupling a radio telecommunication device to external apparatuses	Nokia Mobile Phones Limited	Pennanen; Jouni | Pankinaho; Ilkka | Tuominen; Mika J.	343	H04D	19991103	0	100%	☐

Abstract: An antenna coupler (400, 500, 802) is provided for coupling a radio telecommunication device (301) with an integral planar antenna to an external device (801). The integral planar antenna of the radio telecommunication device comprises a first planar conductive antenna element (306). The antenna coupler comprises a second planar conductive antenna element (401, 501) which is essentially similar to the first planar conductive antenna element, a first conductive ground plane (403) parallel to the second planar conductive antenna element and transmission apparatus (404) for conducting a radio frequency signal between the second planar conductive antenna element and the external device.
MainClaim: Antenna coupler for coupling a radio telecommunication device with an integral planar antenna to an external device, wherein the integral planar antenna of the radio telecommunication device comprises a first planar conductive antenna element, the antenna coupler comprising

a second planar conductive antenna element which is essentially similar to the first planar conductive antenna element,

a first conductive ground plane parallel to said second planar conductive antenna element and

transmission means for conducting a radio frequency signal between said second planar conductive antenna element and the external device.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	92%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

6,552,686	Internal multi-band antenna with improved radiation efficiency	Nokia Corporation	Ollikainen; Jani | Lehtola; Antero	343	H01Q	20010914	0	100%	☐

Abstract: A radio antenna including a first shorted patch having a first resonance frequency (GSM1800), a second shorted patch having a second resonance frequency (E-GSM) connected to the first shorted patch for sharing a feed point, and a third shorted patch having a third resonance frequency (GSM1900) located adjacent to the second shorted patch. The second shorted patch has an extended portion surrounding at least two sides of the first shorted patch, leaving a gap therebetween. The third shorted patch serves as a parasitic patch to increase the bandwidth of the second shorted patch. Part of the extended portion of the second shorted patch is extended beyond the top edge of the ground plane to which the patches are grounded.
MainClaim: A multi-band radio antenna structure for use in a hand-held telecommunication device, comprising:

a ground plane;

a first planar radiating element formed of a first electrically conducting area having a first resonance frequency, wherein the first planar radiating element has a grounding point connected to the ground plane and a feed point for feeding adjacent to the grounding point, and wherein the first electrically conducting area is positioned adjacent to a first portion of the ground plane;

a second planar radiating element formed of a second electrically conducting area having a second resonance frequency substantially lower than the first resonance frequency, wherein the second electrically conducting area has a grounding end connected to the first electrically conducting area adjacent to the grounding point of the first planar radiating element, and an open end surrounding at least two sides of the first electrically conducting area, leaving a gap between the second electrically conducting area and the surrounded sides of the first electrically conducting area, and wherein the second electrically conducting area is positioned adjacent to a second portion of the ground plane; and

a third radiating element formed of a third electrically conducting area adjacent to the second planar radiating element having a third resonance frequency different from the first resonance frequency, wherein the third radiating element has a further grounding point different from the grounding point of the first planar radiating element, and wherein the third electrically conducting area is positioned adjacent to a third portion of the ground plane different from the first and second portions of the ground plane.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	95%	☐
7,205,942	Multi-band antenna arrangement	Nokia Corporation	Wang; Hanyang | Zheng; Ming | Brett; Sean	343	H01Q	20050706	0	100%	☐

Abstract: An antenna arrangement comprising: a ground plane; a ground point connected to the ground plane; a feed point; a .lamda./2 antenna element connected to the ground point and to the feed point and extending between the ground point and the feed point as a loop that defines an area; and a .lamda./4 antenna element located within the area.
MainClaim: An antenna arrangement comprising: a ground plane; a ground point connected to the ground plane; a feed point; a .lamda./2 antenna element connected to the ground point and to the feed point and extending between the ground point and the feed point as a loop that defines an area; and a .lamda./4 antenna element located within the area, wherein the .lamda./4 antenna element is a PIFA.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	95%	☐
6,300,913	Antenna	Nokia Mobile Phones Ltd.	Davidson; Brian	343	H01Q	19991215	0	100%	☐

Abstract: An antenna for a mobile communication device, the antenna comprising a housing; a first resonator element with a first feed point having a first resonant frequency; and a second resonator with a second feed point having a second resonant frequency, wherein the housing has an outer portion supporting the first resonator element and an inner portion supporting the second resonator element, the inner portion being positioned within the outer housing such that the first and second feed points are coupled to provide a feed point for the antenna thereby allowing the antenna to operate with the first resonant frequency and the second resonant frequency.
MainClaim: An antenna for a mobile communication device, the antenna comprising a housing; a first resonator element with a first feed point having a first resonant frequency; and a second resonator with a second feed point having a second resonant frequency, wherein the housing has an outer portion supporting the first resonator element and an inner portion supporting the second resonator element, the inner portion being positioned within the outer housing such that the first and second feed points are coupled to provide a feed point for the antenna thereby allowing the antenna to operate with the first resonant frequency and the second resonant frequency.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
7,339,527	Controllable antenna arrangement	Nokia Corporation	Sager; Mads | Troelsen; Jens	343	H01Q	20021120	0	100%	☐

Abstract: An antenna (11) includes a patch antenna element (22) capacitively coupled to a load patch (27). A switch (33) connects the load patch (27) to one of one or more strip lines (35, 37, 40), each of which has a different length. Each strip lines causes the load patch (27) to have a different impedance, with one causing a short circuit, one causing an open circuit, and one causing an impedance in between these extremes. Different impedances of the load patch (27) cause different frequencies of operation of the antenna patch (22) by virtue of the capacitive coupling therebetween. The antenna (11) is thereby tuneable to three separate frequencies. Other frequency bands are unaffected by virtue of the location of the load patch (27) relative to the antenna patch (22). By allowing tuning by way of controlling the impedance of the load patch (27), the antenna arrangement can be made smaller than a corresponding passive antenna operable at the same frequencies. By using an N throw switch, N strip lines of different lengths can be connected, each giving rise to a different operating frequency.
MainClaim: An antenna arrangement comprising: an antenna element; a frequency adjusting arrangement for tuning said antenna element, wherein said frequency adjusting arrangement comprises: a load element capacitively coupled to

said antenna element; at least two lines, each of said at least two lines comprising one of a strip line or a microstrip line; and a switch, the switch having at least two throws, each throw of said switch being connected to a different one of said at least two lines, the switch being arranged to connect one of said at least two lines to said load element.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
6,140,966	Double resonance antenna structure for several frequency ranges	Nokia Mobile Phones Limited	Pankinaho; Ilkka	343	H01Q	19980702	0	100%	☐

Abstract: The invention relates to small-sized antenna systems, especially planar antenna structures operating on several frequency bands. The antenna structure of the invention comprises a radiating antenna element with at least two lips. Thus, the antenna structure has two basic resonance frequencies, which are defined by the dimensions of the lips of the antenna element, gaps between them, and the other dimensions of the antenna structure. The radiating antenna structure is connected to the ground plane at least at one place. The radiating antenna element comprises at least two connection points, which are used for connecting the feed lines of the transmitter and receiver, and for connecting special tuning elements. The resonance frequencies of the antenna structure may be adjusted by connecting the said tuning elements to the connection points and antenna feed lines so that the antenna structure is operable on more than two frequency bands. The switches may be conventional semiconductor switches, such as FET switches or PIN diodes. Various optionally connectable tuning element or antenna feed arrangements may be used for carrying out an antenna arrangement which may be tuned in on all reception and transmission bands of an arrangement with several frequency ranges and mobile phone systems.
MainClaim: An antenna structure for use in a multiband device, comprising a planar antenna element and a ground plane so that the said antenna element is short-circuited to the ground plane at least at one place, characterized in that said antenna element has at least two separate resonance frequencies, and that said antenna element has at least two connection points for connecting feed lines of the antenna, so that the antenna structure works in at least two TX-frequency bands and two RX-frequency bands of at least two wireless systems.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
6,904,296	Internal antenna for mobile communications device	Nokia Mobile Phones Limited	Geeraert; Francis | Gram; Hans Erik	455	H04M	20010209	0	100%	☐

Abstract: A balanced antenna is provided for a mobile telephone which couples to the outputs from a balanced power amplifier stage without needing connection through a lossy conversion circuit. The balanced antenna comprises two radiating elements positioned opposite one another with the feed points positioned so that the radiating fields from the two elements superpose. A floating ground is also provided which reduces the effects of components located on the PCB under the antenna.
MainClaim: A balanced antenna for connecting to a balanced power amplifier stage in a portable communications device, the balanced power amplifier stage including first and second outputs, the antenna comprising a ground plane and first and second antenna elements spaced apart from the ground plane, wherein the first antenna element has a face lying in a first antenna plane and a second antenna element has a face lying in a second antenna plane, the faces are substantially parallel and spaced apart from each other in a direction perpendicular to one of the first and second antenna planes, and wherein each of the antenna elements has a feed point connectable to a different output from the power amplifier stage.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	92%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

			Chiang; Bing |					

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
5,929,813	Antenna for mobile communications device	Nokia Mobile Phones Limited	Eggleston; Steve W	343	H01Q	19980109	0	100%	☐

Abstract: A new category of mobile communications antenna is implemented in a single layer of conducting material. Wire-slot sections, including wire-tabs defining slots in the material, partially extend around the perimeter of at least one patch-tab section of the antenna. The perimeter of the at least one patch-tab section forms one edge of each slot, and the wire-tab of a wire-slot section forms a second edge of the slot. The wire-tabs of the wire-slot sections are separated from the patch-tab section by the slots and merge into the patch-tab section at a desired point. The length of each of the wire-slot sections may vary. A portion of each of a pair of the wire-tabs of the wire-slot sections functions as an input feed. The patch-tab section may be implemented as a single tab or as a plurality of tabs separated from one another by a slot. By varying the relative geometries of the patch-tab, wire-slots and tabs of the wire-slots, the electrical properties of the antenna, including the input impedance, can be adjusted.
MainClaim: An antenna for use in a mobile communications device, said antenna comprising:

at least one patch-tab section each of said at least one patch-tab section formed of a separate sheet of conducting material and having a perimeter;

a plurality of wire-tab sections, each of said plurality of wire-tab sections having a first and a second end and at least a first and a second edge and formed contiguously with and merging into, at said first end, the sheet of conducting material of a selected patch-tab section of said at least one patch-tab section, and each of said plurality of wire-tab sections extending outward from and partially around the perimeter of said selected patch-tab section, defining a slot between the perimeter of said selected patch-tab section and said first edge, wherein said second at least one edge of each of said plurality of wire-tab sections defines a portion of an outer edge of said antenna; and

a first and second terminal formed on the second end of a first and second wire-tab section, respectively, of said plurality of wire-tab sections, wherein said first and second terminals each provide a separate feed point to said antenna.

7,612,725	Antennas for handheld electronic devices with conductive bezels	Apple Inc.	Hill; Robert J. | Schlub; Robert W. | Caballero; Ruben	343	H01Q	20070621	3	93%	☐

Abstract: A handheld electronic device may be provided that contains wireless communications circuitry. The handheld electronic device may have a housing and a display. The display may be attached to the housing a conductive bezel. The handheld electronic device may have one or more antennas for supporting wireless communications. A ground plane in the handheld electronic device may serve as ground for one or more of the antennas. The ground plane and bezel may define a opening. A rectangular slot antenna or other suitable slot antenna may be formed from or within the opening. One or more antenna resonating elements may be formed above the slot. An electrical switch that bridges the slot may be used to modify the perimeter of the slot so as to tune the communications bands of the handheld electronic device.
MainClaim: A handheld electronic device, comprising: a housing having a planar surface with a periphery; a ground plane element mounted to the housing that has portions that define a slot; a conductive bezel that surrounds the periphery of the planar surface of the housing, that surrounds the slot in the ground plane element, and that is electrically connected to the ground plane element; and at least one antenna formed from the ground plane element and the slot.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W. | Zavala; Juan | Caballero; Ruben	343	H01Q	20071213	8	92%	☐

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.
MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element;

antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

6,025,802	Antenna for mobile communications device	Nokia Mobile Phones Limited	Eggleston; Steve W | Sung; Ken	343	H01Q	19980316	0	100%	☐

Abstract: A new category of mobile communications antenna is implemented in a single layer of conducting material. Wire-slot sections, including wire-tabs defining slots in the material, partially extend around the perimeter of at least one patch-tab section of the antenna. The perimeter of the at least one patch-tab section forms one edge of each slot, and the wire-tab of a wire-slot section forms a second edge of the slot. The wire-tabs of the wire-slot sections are separated from the patch-tab section by the slots and merge into the patch-tab section at a desired point. The length of each of the wire-slot sections may vary. A portion of each of a pair of the wire-tabs of the wire-slot sections functions as an input feed. The patch-tab section may be implemented as a single tab or as a plurality of tabs separated from one another by a slot. By varying the relative geometries of the patch-tab, wire-slots and tabs of the wire-slots, the electrical properties of the antenna, including the input impedance, can be adjusted.
MainClaim: An antenna assembly for use in a mobile communications device, said antenna assembly comprising:

a spacer having a first and a second surface and a side;

an antenna comprising a combined patch-tab and wire-slot configuration having an edge and a first and a second terminal, said first and said second terminal each mounted on said edge of said antenna, said antenna in sheet form and mounted on said first surface of said spacer, wherein said first and said second terminals extend outward from said antenna along the side of said spacer; and

a ground plane, said ground plane in sheet form and mounted on said second surface of said spacer, wherein said ground plane is disposed in a spaced-apart manner from said antenna, and said first terminal is electrically connected to said ground plane providing electrical connection between said ground plane and said antenna, and wherein said second terminal provides a signal feed for said antenna.

7,612,725	Antennas for handheld electronic devices with conductive bezels	Apple Inc.	Hill; Robert J. | Schlub; Robert W. | Caballero; Ruben	343	H01Q	20070621	3	93%	☐

Abstract: A handheld electronic device may be provided that contains wireless communications circuitry. The handheld electronic device may have a housing and a display. The display may be attached to the housing a conductive bezel. The handheld electronic device may have one or more antennas for supporting wireless communications. A ground plane in the handheld electronic device may serve as ground for one or more of the antennas. The ground plane and bezel may define a opening. A rectangular slot antenna or other suitable slot antenna may be formed from or within the opening. One or more antenna resonating elements may be formed above the slot. An electrical switch that bridges the slot may be used to modify the perimeter of the slot so as to tune the communications bands of the handheld electronic device.
MainClaim: A handheld electronic device, comprising: a housing having a planar surface with a periphery; a ground plane element mounted to the housing that has portions that define a slot; a conductive bezel that surrounds the periphery of the planar surface of the housing, that surrounds the slot in the ground plane element, and that is electrically connected to the ground plane element; and at least one antenna formed from the ground plane element and the slot.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	93%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W. | Zavala; Juan | Caballero; Ruben	343	H01Q	20071213	8	92%	☐

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane

element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.

MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

7,149,540	Antenna	Nokia Corporation	Johnson; Alan	455	H04M	20011219	0	100%	☐

Abstract: An antenna comprising a first resonator element (260) for coupling to an antenna feed (264) ; a second resonator element (262) for coupling to ground; the first and second resonator elements arranged to allow field coupling between the first and second resonator elements such that at a first frequency the first and second resonator elements co-operate to allow operation of the first and second resonator elements in a first mode wherein the direction of current flow in one resonator element is different from the direction of current flow in the other resonator element and at a second frequency the first and second resonator elements co-operate to allow operation of the first and second resonator elements in a second mode wherein the direction of current flow in one resonator element is substantially the same as the direction of current flow in the other resonator element.

MainClaim: An antenna comprising a first resonator element for coupling to an antenna feed; a second resonator element for coupling to ground; the first and second resonator elements arranged to allow field coupling between the first and second resonator elements such that at a first frequency the first and second resonator elements co-operate to allow operation of the first and second resonator elements in a first mode wherein the direction of current flow in one resonator element is different from the direction of current flow in the other resonator element and at a second frequency the first and second resonator elements co-operate to allow operation of the first and second resonator elements in a second mode wherein the direction of current flow in one resonator element is substantially the same as the direction of current flow in the other resonator element.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%	☐
6,498,586	Method for coupling a signal and an antenna structure	Nokia Mobile Phones Ltd.	Pankinaho; Ilkka	343	H01Q	20001227	0	100%	☐

Abstract: The invention relates to a method for coupling a signal to an antenna structure, as well as to an antenna structure, which comprises at least two antenna elements (101, 102), a ground plane (105) for grounding the antenna structure, a coupling line (106) for coupling a first antenna element and a second antenna element to each other, and a feeding line (107) for feeding the antenna structure through one feeding point. The first antenna element (101) is next to the ground plane and perpendicular to the ground plane (105). The second antenna element (102) is above the ground plane and parallel to the ground plane. The first antenna element is arranged to receive information on a reception band of a broadband radio system and the second antenna element is arranged to transmit information on a transmission band of said broadband radio system. By arranging the second antenna element to be adjustable and by adding antenna element to the antenna structure, the antenna structure according to the invention can be used, for example, in mobile stations of 2nd and 3rd generation mobile communication systems.

MainClaim: An antenna structure, which comprises

a first antenna element for receiving or transmitting information,

a second antenna element for receiving or transmitting information,

a ground plane for grounding the antenna structure,

a coupling line for coupling the first antenna element and the second antenna element to each other, and

a feeding line for feeding the antenna structure through one feeding point, wherein

the first antenna element is a microstrip antenna and is located next to the ground plane and perpendicular to the ground plane; and

the second antenna element is a microstrip antenna and is located on the ground plane and parallel to the ground plane.

	Antennas with		Chiang; Bing | Springer; Gregory Allen | Kough;						

7,705,795	periodic shunt inductors	Apple Inc.	Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
6,476,769	Internal multi-band antenna	Nokia Corporation	Lehtola; Antero	343	H01Q	20010919	0	100%	☐

Abstract: A radio antenna including a first shorted patch having a first resonance frequency (GSM1800), a second shorted patch connected to the first shorted patch for sharing a first feed point, and a third shorted patch separately having a second feed point. A first switch and a second switch connect between the ground and, respectively, the first and the second feed points. To cause the second and third shorted patches to produce, respectively, a second (E-GSM900) and a third resonance frequency (PCS1900), the first switch is operated in the open position while the second switch is operated in the closed position. To cause the first and third shorted patches to produce, respectively, a third frequency and a fourth resonance frequency (UMTS), the first switch is operated in the closed position while the second switch is operated in the open position.

MainClaim: A multi-band radio antenna structure for use in a hand-held telecommunication device comprising:

a ground plane;

a sub-antenna structure comprising:

a first radiating element formed of a first electrically conducting area having a first resonance frequency, wherein the first electrically conducting area has a first end connected to the ground plane for grounding the first radiating element, and wherein the first radiating element has a first feed-point for feeding located adjacent to the first end; and

a second radiating element formed of a second electrically conducting area disposed adjacent to the first electrically conducting area, wherein the second electrically conducting area has a second end electrically connected to the first end of the first electrically conducting area for grounding the second radiating element and for sharing the first feed-point for feeding;

a third radiating element formed of a third electrically conducting area adjacent to the sub-antenna structure, wherein the third electrically conducting area has a third end connected to the ground plane for grounding the third radiating element, and wherein the third radiating element has a second feed-point for feeding located adjacent to the third end;

a first switching device, operable between an open position and a closed position, connecting between the first feed-point and the ground plane; and

a second switching device, operable between an open position and a closed position, connecting between the second feed-point and the ground plane, wherein

when the second switching device is operated in the closed position, thereby grounding the second feed-point and the first switching device is operated in the open position for enabling the first feed-point feeding, the second radiating element has a second resonance frequency substantially lower than the first resonance frequency and the third radiating element has a third resonance frequency generally higher than the first resonance frequency, and

when the first switching device is operated in the closed position, thereby grounding the first feed-point, and the second switching device is operated in the open position for enabling the second feed-point feeding, the third radiating element has a fourth resonance frequency generally higher than the third resonance frequency.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%	☐
6,054,954	Antenna assembly for communications device	Nokia Mobile Phones Limited	Eggleston; Steve W | Sung; Ken	343	H01Q	19990927	0	100%	☐

Abstract: An antenna assembly for implementing an antenna internally in a mobile communications device. The antenna assembly includes a substantially planar antenna having terminals extending substantially perpendicular outward from the antenna and disposed adjacent and opposite one another. The antenna assembly also includes a connector having conducting surfaces that are disposed substantially parallel, on opposite surfaces of the connector. The connector may be mounted on a spacer that is mounted in the communications device, with the connector and conducting surfaces substantially perpendicular to the spacer. The antenna is placed on the spacer with the terminals of the antenna extending in the direction of the spacer along both sides of the connector and the terminals each contact one of the conducting surfaces of the connector. The antenna assembly may be secured in the device using a cover congruent with the outer covering of the device. Desired electrical connections to each of the antenna terminals may be made by connecting each of the conducting surfaces to a feed point or ground connection.

MainClaim: An antenna assembly for use in a communications device, said antenna assembly comprising:

a connector mounted in the communications device, said connector having a first and second conducting surface, said

first and second conducting surfaces disposed substantially parallel to one another on said connector; and

an antenna comprising a first and second terminal, each of said first and second terminal extending outward from said antenna, said first and second terminals disposed adjacent and opposite one another, wherein said first terminal contacts said first conducting surface and said second terminal contacts said second conducting surface when said antenna assembly is mounted internally in the communications device, and, wherein electrical connections to said first and second terminal are made through said first and second conducting surfaces, respectively.

7,612,725	Antennas for handheld electronic devices with conductive bezels	Apple Inc.	Hill; Robert J. | Schlub; Robert W. | Caballero; Ruben	343	H01Q	20070621	3	93%	☐

Abstract: A handheld electronic device may be provided that contains wireless communications circuitry. The handheld electronic device may have a housing and a display. The display may be attached to the housing a conductive bezel. The handheld electronic device may have one or more antennas for supporting wireless communications. A ground plane in the handheld electronic device may serve as ground for one or more of the antennas. The ground plane and bezel may define a opening. A rectangular slot antenna or other suitable slot antenna may be formed from or within the opening. One or more antenna resonating elements may be formed above the slot. An electrical switch that bridges the slot may be used to modify the perimeter of the slot so as to tune the communications bands of the handheld electronic device.
MainClaim: A handheld electronic device, comprising: a housing having a planar surface with a periphery; a ground plane element mounted to the housing that has portions that define a slot; a conductive bezel that surrounds the periphery of the planar surface of the housing, that surrounds the slot in the ground plane element, and that is electrically connected to the ground plane element; and at least one antenna formed from the ground plane element and the slot.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	92%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W. | Zavala; Juan | Caballero; Ruben	343	H01Q	20071213	8	92%	☐

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.
MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

6,028,567	Antenna for a mobile station operating in two frequency ranges	Nokia Mobile Phones, Ltd.	Lahti; Saku	343	H01Q	19981208	0	100%	☐

Abstract: The invention comprises an antenna structure particularly suitable for mobile stations operating on two frequency ranges. As a supporting component and also as component determining the electrical characteristics the antenna includes a dielectric plate (21). On one surface of the dielectric plate there is a radiating element (22) with a meander form, and on the opposite support of the dielectric plate there is a planar radiating element (23). The operation on two frequency ranges is based on the fact that the structure has two resonance frequencies, which are relatively far from each other. The strips are further relatively wide, due to which the antenna operates satisfactorily in different

positions and in the vicinity of objects. The parasitic element can further have a gap operating as a separate radiator, whereby the antenna operates on three frequency ranges. The antenna according to the invention is flat, and therefore it can be fixed to the back wall of a mobile station, and the distance to the user's head is as large as possible.
MainClaim: An antenna which comprises a first element connected to its feed line and at least one parasitic element characterized in that

said first element is a meander element,

said parasitic element is a planar conductor area, and

the supporting structure for the meander and parasitic elements is a dielectric plate, where said dielectric plate is the dielectric part of a printed circuit board, said meander element is a conductor area on the first surface of said printed circuit board and said parasitic element is a conductor area on the second, opposite surface of said printed circuit board, the antenna having a first operating frequency band and a second operating frequency band, the second operating frequency band being higher in frequency than the first operating frequency band, said parasitic element being adapted to widen at least the second operating frequency band.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
6,650,295	Tunable antenna for wireless communication terminals	Nokia Corporation	Ollikainen; Jani | Kivekas; Outi | Vainikainen; Pertti	343	H01Q	20020128	0	100%	☐

Abstract: A radio antenna comprising a tuning component, such as a transmission line, coupled to the radiating element for providing a frequency shift from the resonant frequency, and an adjustment mechanism for adjusting the frequency shift by effectively changing the length of the transmission line. The adjustment mechanism comprises one or more extension lines, and a switching mechanism, which can be closed to couple one or more of the extension lines to the transmission line. The tuning component can also be one or more lumped reactive elements.
MainClaim: A radio antenna for use in a hand-held telecommunications device, said antenna including a radiating element having a resonant frequency, a grounding point and a feed point, said antenna comprising:

a transmission line having a length between a first end and an opposing second end, the second end coupled to the radiating element for providing a frequency shift from the resonant frequency, and

an adjustment means, disposed adjacent to the first end of the transmission line, for adjusting the frequency shift by effectively changing the length of the transmission line.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
7,495,620	Antenna	Nokia Corporation	Wang; Hanyang | Zheng; Ming	343	H01Q	20050407	0	100%	☐

Abstract: An antenna arrangement including a first antenna element having a first portion and a first feed; and a second antenna element having a second portion and a second feed, different to the first feed, wherein the first antenna element and the second antenna element are relatively arranged and oriented so that the first portion and the second portion run in parallel separated by a gap and so that electric currents generated in the first portion and the second portion travel in substantially the same directions at substantially the same times.
MainClaim: An antenna arrangement comprising: a first antenna element having a first radiating portion and a first feed; and a second antenna element having a second radiating portion and a second feed, different to the first feed, wherein the first antenna element and the second antenna element are relatively arranged and oriented within a first plane so that the first radiating portion and the second radiating portion run in parallel, so that electric currents generated in the first radiating portion and the second radiating portion travel in substantially the same directions at substantially the sane times.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
7,301,502	Antenna arrangement for a cellular communication	Nokia Corporation	Sinasi; Ozden | Sejersgaard-Jacobsen; Dennis	343	H01Q	20050818	0	100%	☐

	terminal								

Abstract: An antenna arrangement operable to transmit/receive in a first communications band and a second communications band, including a ground plane; a first conductive element for transmitting/receiving; a second conductive element separate from the first conductive element and the ground plane and having a first portion proximal to, but separated from the first conductive element and a second portion proximal to, but separated from the ground plane; and a switch element for connecting/disconnecting the second conductive element to the ground plane, wherein, the first conductive element, when the switch element disconnects the second conductive element from the ground plane, is operable to transmit/receive in a first communications band and is inoperable to transmit/receive in a second communications band and the first conductive element, when the switch element disconnects the second conductive element from the ground plane, is operable to transmit/receive in the second communications band and inoperable to transmit/receive in the first communications band.
MainClaim: An antenna arrangement operable to transmit/receive in a first communications band and a second communications band, comprising: a ground plane; a first conductive element for transmitting/receiving; a second conductive element separate from the first conductive element and the ground plane and having, at a first position that is closest to the first conductive element, a first inductive portion that is separated from the first conductive element and having, at a second position that is closest to the ground plane, a second capacitive portion that is separated from the ground plane; and a switch element for connecting/disconnecting the second conductive element to the ground plane, wherein, the first conductive element, when the switch element disconnects the second conductive element from the ground plane, is operable to transmit/receive in a first communications band and is inoperable to transmit/receive in a second communications band and the first conductive element, when the switch element connects the second conductive element to the ground plane, is operable to transmit/receive in the second communications band and inoperable to transmit/receive in the first communications band.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
6,054,966	Antenna operating in two frequency ranges	Nokia Mobile Phones Limited	Haapala; Paivi	343	H01Q	19960605	0	100%	☐

Abstract: The invention relates to an antenna structure D with at least two resonance frequency bands. It comprises a first antenna element (P2; P3) which is preferably a straight conductor, and a second antenna element (HX3; HX4) which is preferably a conductor wound into a cylindrical coil, the antenna elements having different resonance frequencies. A rod element (P2; P3) is partly inside a helical element (HX3; HX4) and they can comprise the same feed point (A4) or separate feed points (A5; A6). The antenna can comprise a third antenna element (HX5) which is preferably a conductor wound into a cylindrical coil comprising a different resonance frequency from the other two antenna elements. The antenna according to the invention is well-adapted to be used in a mobile phone operating in at least two cellular telephone systems using different frequencies.
MainClaim: An antenna for transmitting and receiving radio frequency oscillations by using a radio transceiver, said antenna comprising:

a first antenna element which has a first input impedance and a first resonance frequency; and

a second antenna element which is a cylindrical coil conductor and has a second input impedance and a second resonance frequency that is different than said first resonance frequency,

wherein a part of said first antenna element is located inside said cylindrical coil conductor, and wherein the first and second antenna elements provide two respective different, separate and spaced operating frequency ranges, wherein the two different operating frequency ranges are separated from each other by at least about 400 MHz.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
6,130,650	Curved inverted antenna	Nokia Mobile Phones Limited	Curtis; Alastair | Goodwin; Stephen	343	H01Q	19960726	0	100%	☐

Abstract: A curved inverted-L and F antenna is disclosed. In a preferred embodiment a curved inverted-F antenna 300 comprising a capacitative line 206 and inductive stub 204 is disposed above a correspondingly curved ground plane 308. Preferably, the separation between the capacitative line 206 and ground plane 308 is substantially constant and of the order of one tenth of the wavelength of the operating frequency of the antenna. Suitably the short circuit element of the antenna and the feed track 402 are non-parallel which has the effect of improving the radiated field in a short circuit direction.
MainClaim: An antenna comprising coplanar conductive traces disposed on a planar substrate surface:

a first conductive trace defining a ground region;

a second conductive feed trace defining a first element, which extends transversely through said first trace, said second

trace being insulated from said ground region where said second trace passes through said first trace; and

a third conductive trace defining a curved second element, connected to said first element at a first end, and having a second open circuit end, wherein said second element extends to one side of said first element and a distance between said second element and said ground region remains constant as the distance from said first element increases.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
7,327,324	Monopole slot antenna	Nokia Corporation	Wang; Hanyang | Zheng; Ming | Zhang; Su Qing | Johnson; Alan	343	H01Q	20021216	0	100%	☐

Abstract: A resonant monopole slot antenna comprising a ground plane, having a radiating slot which is dimensioned such that the slot is equivalent electromagnetically to an odd number of quarter wavelengths at the antenna's operating frequency, wherein the antenna's feed is arranged at the open end of the radiating slot.
MainClaim: A resonant monopole slot antenna comprising a ground plane, having a radiating slot which is dimensioned such that the slot is equivalent electromagnetically to an odd number of quarter wavelengths at the antenna's operating frequency, wherein the antenna's feed point is arranged at the open end of the radiating slot and situated so as to coincide with the maximum E field position of the antenna.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%	☐
6,693,594	Optimal use of an electrically tunable multiband planar antenna	Nokia Corporation	Pankinaho; Ilkka | Louhos; Juha-Pekka	343	H01Q	20020401	0	100%	☐

Abstract: An antenna arrangement for mobile telecommunication devices comprises a planar radiating element (101), a ground plane (402) parallel to the planar radiating element (101) and means (301, 302, 303, 311, 312, 313, 411, 412, 413, 421, 422, 423, 431, 432, 433) for providing a grounding connection between the planar radiating element (101) and the ground plane (402). The means for providing a grounding connection between the planar radiating element (101) and the ground plane (402) comprise a number of Grounding connections (301/311, 302/312, 303/313, 411/412/413, 421/422/423, 431/432/433). A number of them is independently controllable between certain states. The state of each independently controllable grounding connection (301/311, 302/312, 303/313, 411/412/413, 421/422/423, 431/432/433) has an effect on certain operational frequency bands of the antenna arrangement.
MainClaim: A mobile telecommunications device, comprising

a radio transceiver having an antenna port and a control block,

a ground plane constituting a local ground potential for the radio transceiver,

a planar radiating element located parallel to the ground plane and coupled to the antenna port of the radio transceiver,

a number of grounding connections between the planar radiating element and the ground plane, each of which grounding connections is independently controllable by the control block of the radio transceiver between certain states of conduction, wherein the state of conduction of each independently controllable grounding connection has an effect on certain operational frequency bands of the mobile telecommunications device;

wherein:

the planar radiating element comprises a first branch and a second branch, of which the electric length of said first branch is remarkably greater than that of said second branch, resulting in a lower operational frequency band and a higher operational frequency band,

the control block of the radio transceiver is arranged to detect, based on information received from a cellular radio system, changes where the mobile telecommunications device moves from a first cellular radio system to a second cellular radio system, of which operation in said first cellular radio system involves a certain first radio frequency range and operation in said second cellular radio system involves a certain second radio frequency range that is different than said first radio frequency range, and

the control block of the radio transceiver is equipped with means for altering the settings of said independently controllable grounding connections in response to detected changes when the mobile telecommunications device moves from a first cellular radio system to a second cellular radio system, so that altering the settings causes at least one of

said lower and higher operational frequency bands to match a frequency range of said second cellular radio system.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	92%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

6,597,317	Radio device and antenna structure	Nokia Mobile Phones Ltd.	Talvitie; Olli	343	H01Q	20011025	0	100%	☐

Abstract: A radio device and an antenna structure, wherein a groove (103) provided in a planar radiator (110) of the antenna is used to generate resonances for different frequency ranges, enabling the generation of more than one separate frequency ranges and at least one frequency range covering several mobile communication system bandwidths used. The groove (103) is implemented on the planar radiator (110) such that at least part of the groove is located between a feed point (101) and a ground point (102).
MainClaim: An antenna structure comprising a ground plane, a radiator located at a distance from the ground plane, an insulating layer between said ground plane and said radiator, at least one feed point for feeding a signal to said radiator, and at least one ground point for grounding the radiator to the ground plane, wherein the radiator comprises at least one groove comprising an open end and a closed end, the groove being arranged at least partly between said at least one feed point and said at least one ground point such that a line segment to be created between said feed point and said ground point cuts said groove, whereby a smaller portion of the groove is arranged on that side of the line segment cutting the groove on which the open end of the groove is provided, and a larger portion of the groove is provided on the opposite side of the line segment cutting the groove, on which side the closed end of the groove is arranged.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
6,008,764	Broadband antenna realized with shorted microstrips	Nokia Mobile Phones Limited	Ollikainen; Jani | Vainikainen; Pertti	343	H01Q	19980324	0	100%	☐

Abstract: The invention relates to antenna structures, particularly to substantially planar broadband antennas realized by microstrips. The antenna structure according to the invention has at least two superimposed strips (10, 20), which have a length of about a quarter-wave and which at one end are short circuited to the ground plane (30). The strips (10, 20) have certain resonance frequencies, which are tuned close to each other so that the operating band of the antenna structure is substantially continuous.
MainClaim: A microstrip antenna having a ground plane, a first strip and a second strip arranged between the ground plane and the first strip, comprising

a first short circuiting member and a second short circuiting member, whereby one end of the first strip is short circuited to the ground plane by said first short circuiting member and the corresponding end of the second strip is short circuited to the ground plane by said second short circuiting member, the first strip having a first resonance frequency and the second strip having a second resonance frequency, whereby the first and the second resonance frequencies form a substantially continuous operating band,

means for increasing the inductance of a strip in at least one of the strips,

means for increasing the inductance of a short circuiting member in at least one of said short circuiting members,

and an antenna feed connected to the second strip.

			Chiang; Bing |					

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%
7,629,931	Antenna having a plurality of resonant frequencies	Nokia Corporation	Ollikainen; Jani	343	H01Q	20050415	0	100%

Abstract: An antenna having a plurality of resonant frequencies and including a ground plane having an edge; a feed point; a ground point; and an antenna track extending between the feed point and the ground point and comprising, in series connection, a first loop and a second loop wherein a least a portion of the first loop and a portion of the second loop are adjacent at least the edge of the ground plane.
MainClaim: An antenna comprising: a ground plane having a first edge and a further side edge; a feed point; a ground point; and an antenna track extending between the feed point and the ground point and comprising, in series connection, a first loop and a second loop wherein a portion of the first loop is adjacent the first edge of the ground plane and a portion of the second loop is adjacent the first or the further side edge of the ground plane.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%
7,058,434	Mobile communication	Nokia Corporation	Wang; Hanyang | Zheng; Ming | Goward; Jason	455	H04M	20031118	0	100%

Abstract: An antenna arrangement for dual mode radio devices such as WCDMA/GSM or Bluetooth radio devices. The arrangement contains two antennas close to each other, where a shorting switch is used at an open end of one antenna to increase isolation by effectively converting the one antenna from a quarter wave length antenna to a half wave length antenna when not needed in order to improve the efficiency of the other antenna. The shorting switch is typically a MEMS switch and the antennas are typically PIFA antennas. A radio device containing the arrangement has also been disclosed.
MainClaim: An antenna arrangement for a radio device, comprising: first and second antennas, whereby the first antenna operates on a first frequency band and the second antenna operates on a second frequency band, the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, the second antenna comprising a radiating body having a first end and a second end, the second end selectively operating as an open end; a feed point between the first end and the second end; and a detuning switch for grounding the radiating body at a point between the feed point and the second end such that the power draw caused by the second antenna from the first antenna is reduced, the radiating body being disposed over a ground plane such that the second end overlies the ground plane and the first end does not overlie the ground plane.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%
7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	92%

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	92%

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact

tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

7,307,591	Multi-band antenna	Nokia Corporation	Zheng; Ming	343	H01Q	20040720	0	100%	☐

Abstract: An antenna having a plurality of resonant frequencies and comprising a feed point, a ground point and a conductive track that extends from the feed point and returns to the ground point and means for locally increasing the reactance of the antenna track at a first position coincident with a maximum electromagnetic field associated with at least one of the plurality of resonant frequencies.
MainClaim: An antenna having a plurality of resonant frequencies and comprising a feed point, a ground point and a conductive antenna track that extends from the feed point and returns to the ground point to form one of a folded monopole or a folded dipole and an antenna track configuration for locally increasing the reactance of the conductive antenna track at a first position on the conductive antenna track, between the feed point and the ground point; wherein the antenna track configuration for locally increasing the reactance comprises localized capacitive loading at the first position, wherein the first position is coincident with a maximum E-field associated with at least one of the plurality of resonant frequencies; and wherein the antenna track configuration for locally increasing the reactance comprises localized inductive loading at a third position, wherein the third position is coincident with a maximum H-field associated with at least one of the plurality of resonant frequencies.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	94%	☐
6,653,978	Miniaturized radio frequency antenna	Nokia Mobile Phones, Ltd.	Lahti; Saku	343	H01Q	20000420	0	100%	☐

Abstract: A device and method for receiving signals in the radio frequency range by a mobile phone. The device comprises a radiator part having a 1/4 wave electric length (or an odd integral multiple thereof) for receiving the signals, wherein the feed of the radiator part is tapped for impedance matching. In order to reduce to the size of the device so that it can be implemented in a mobile phone or a communicator, the radiator part is placed at the proximity of a frame having a medium relative permittivity for dielectric loading. The relative permittivity of the frame ranges from 2 to 50 in the radio frequency range. Preferably, one or more devices are placed at one of the corners of the mobile phone body so that one device will be selected to receive the signals based on the interaction between the radiation modes of the device and the radiation field of the mobile phone body in order to achieve a right-handed, circular or elliptical polarization.
MainClaim: A method of achieving a right-handed circular or elliptical polarization field in a mobile terminal having a body radiation mode, said mobile terminal comprising a radio-frequency antenna, and a chassis or circuit board for mounting the radio-frequency antenna, the chassis or circuit board having four corners to define a plane having a first axis and a second axis perpendicular to the first axis, wherein the radio-frequency antenna comprises:

a radiator part; and

a support frame for effecting dielectric loading on the radiator part, wherein the radiator part comprises:

a resonating region for transmitting and receiving signals in a radio frequency range;

a feeding region coupled to the resonating region for impedance matching, and

an electrically grounding end located in the proximity of the feeding region, and

wherein the radiator part has a first radiation mode and a second different radiation mode,

said method characterized by

disposing the radio-frequency antenna at one of the corners of the chassis or circuit board such that the first radiation mode propagates along the first axis and the second radiation mode propagates along the second axis, the first and second radiation modes forming an antenna radiation mode orthogonal to the body radiation mode

the method being further characterized by providing a slit formed between corners of the chassis or circuit board, to tune the body radiation mode, for optimizing the right-hand circular or elliptical polarization field.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
7,505,006	Antenna arrangement	Nokia Corporation	Ollikainen; Jani | Ella; Juha | Ranta; Tero | Zhao; Anping	343	H01Q	20060608	0	100%	☐

Abstract: An antenna arrangement including: a coupling element, a conductive element; an extension element for electrically extending the conductive element and a reactive element. A method of creating an antenna arrangement including an antenna element having a first resonant frequency and a first bandwidth, a conductive element, an extension element, for electrically extending the conductive element, having a size and an inductor having an inductance value wherein the extended conductive element has a resonant mode having a second resonant frequency and a second bandwidth, the method including: selecting the size of the extension element, the inductance value and a position of the inductor to tune the resonant mode of the extended conductive element so that the second bandwidth in the region of the first resonant frequency is larger than the first bandwidth in the region of the first resonant frequency.
MainClaim: An antenna arrangement comprising: a first coupling element, a second coupling element a conductive element an extension element for electrically extending the conductive element and a reactive element, wherein the reactive element is variable between a first setting and a second setting and wherein when the reactive element is in the first setting the extension element and reactive element in combination electrically extend the conductive element to enhance a bandwidth of the first coupling element and when the reactive element is in the second setting the extension element and reactive element in combination electrically extend the conductive element to enhance a bandwidth of the second coupling element.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
5,657,028	Small double C-patch antenna contained in a standard PC card	Nokia Moblie Phones Ltd.	Sanad; Mohamed	343	H01Q	19950331	0	100%	☐

Abstract: A module (1') adapted for insertion into a data processor (2). The module includes an interface (40) for electrically coupling the module to the data processor, a modem (42) that is bidirectionally coupled to the interface, an RF energy transmitter (44) having an input coupled to an output of the modem, an RF energy receiver (46) having an output coupled to an input of the modem, and a partially shorted, dual C-patch antenna (20) that is electrically coupled to an output of the RF energy transmitter and to an input of the RF energy receiver. The partially shorted, dual C-patch antenna is comprised of a truncated ground plane (22), a layer of dielectric material (28) having a first surface overlying the ground plane and an opposing second surface, and an electrically conductive layer (30) overlying the second opposing surface of the dielectric layer. The electrically conductive layer forms a radiating patch and has a rectangularly shaped aperture having a length that extends along a first edge of the electrically conductive layer and a width that extends towards an oppositely disposed second edge. The length has a value that is equal to approximately 20% to approximately 35% of a length of the first edge. The antenna further includes electrically conductive vias or feedthroughs (24) for shorting the electrically conductive layer to the ground plane at a region adjacent to a third edge (20a) of the electrically conductive layer.
MainClaim: An antenna structure, comprising:

a ground plane;

a layer of dielectric material having a first surface overlying said ground plane and an opposing second surface;

an electrically conductive layer overlying said second opposing surface of said dielectric layer, said electrically conductive layer being in the shape of a parallelogram and having a first rectangularly shaped radiating aperture having a length that extends along a first edge of said electrically conductive layer and a width that extends towards an oppositely disposed second edge, said electrically conductive layer further having a second rectangularly shaped radiating aperature having a length that extends along said first edge of said electrically conductive layer and a width that extends towards said oppositely disposed second edge, said first and second radiating apertures having a zero potential plane disposed therebetween; and

means for coupling radio frequency energy into or out of said electrically conductive layer, said coupling means being located within said zero potential plane and further being located nearer to one of said radiating apertures than the other.

	Antennas with		Chiang; Bing | Springer; Gregory Allen | Kough;						

7,705,795	periodic shunt inductors	Apple Inc.	Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%	☐
6,400,321	Surface-mountable patch antenna with coaxial cable feed for wireless applications	Apple Computer, Inc.	Fenwick; Stephen C. | Astrin; Art | Birnbaum; Thomas J. | Mariano; Rick | Fangonilo; Frank	343	H01Q	20000717	1	93%	☐

Abstract: The invention includes an antenna assembly. The antenna assembly includes an antenna plate that defines an interior surface. The antenna plate includes a boss that extends from the interior surface of the antenna plate and a feed point. The antenna assembly also includes a ground plate that defines an interior surface. The ground plate includes a probe channel and a boss. Both the probe channel and the boss each extends from the interior surface of the ground plate. The ground plate boss is coupled to the antenna plate boss. The antenna assembly also includes a probe feed having a ground wire coupled to the probe channel and a conductor wire coupled to the feed point.
MainClaim: An antenna assembly comprising:

an antenna plate that defines an interior surface, the antenna plate having a boss that extends from the interior surface of the antenna plate and a feed point;

a ground plate that defines an interior surface, the ground plate having a probe channel and a boss wherein each extends from the interior surface of the ground plate, and wherein the ground plate boss is coupled to the antenna plate boss; and

a probe feed having a ground wire coupled to the probe channel and a conductor wire coupled to the feed point.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	93%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,236,065	Integrated RF-front end having an adjustable antenna	Nokia Corporation	Hyvonen; Lassi	333	H01P	20040428	0	100%	☐

Abstract: An integrated RF front-end module for use in a communications device, such as a mobile phone. The RF front-end module is made from a laminated structure consisting of a plurality of layers. At least one of the layers is used to embed RF electronics. Microvias are disposed in various layers of the laminated structure so as to provide electrical connections to the embedded RF electronics. Two electrically conductive layers are provided on both sides of the laminated structure for shielding the RF components against electromagnetic interference. An antenna has one or two radiating elements disposed on one or both sides of the laminated structures for conveying RF signals to and from the RF electronics. The antenna can be fine-tuned and the operational frequency range of the antenna can also be changed.
MainClaim: An integrated radio frequency front-end module for use in an electronic device, said radio frequency front-end module comprising: a physical carrier having a first surface and an opposing second surface; an antenna for transmitting and receiving radio frequency communication signals, the antenna having at least one radiating element disposed on at least one of the first and second surfaces of the physical carrier; radio frequency electronic components disposed in the physical carrier; and electrically conductive connectors disposed in the physical carrier for providing electrical connections between the antenna and the radio frequency electronic components, wherein the antenna has an operational frequency range, said module further comprising: one or more electrically conductive segments disposed on at least one of the first and second surfaces of the physical carrier in relation to said at least one radiating element; and one or more switching elements for selectively connecting said one or more electrically conductive segments and said at least one radiating element for changing the operational frequency range.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	95%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna

can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	92%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	92%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,170,454	Antenna arrangement	Nokia Corporation	Tefiku; Faton	343	H01Q	20050330	0	100%	☐

Abstract: An antenna arrangement including a first matching circuit; a second matching circuit; a first antenna connected to the first matching circuit; a second antenna, moveable with respect to the first antenna, between an extended position in which it is connected to the first matching circuit and a non-extended position in which it forms a couple between the first antenna and the second matching circuit, wherein the second antenna has an impedance that is brought towards a first impedance at a first operational frequency band when the second antenna is moved into the extended position and the first antenna has an impedance which is brought towards the first impedance at a first operational frequency band when the second antenna is moved into the non-extended position.
MainClaim: An antenna arrangement comprising: a first matching circuit; a second matching circuit; a first antenna connected to the first matching circuit; a second antenna, moveable with respect to the first antenna, between an extended position in which it is connected to the first matching circuit and a non-extended position in which it forms a couple between the first antenna and the second matching circuit, wherein the second antenna has an impedance that is brought towards a first impedance at a first operational frequency band when the second antenna is moved into the extended position and the first antenna has an impedance which is brought towards the first impedance at the first operational frequency band when the second antenna is moved into the non-extended position.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	93%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first

and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	92%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	92%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,683,839	Multiband antenna arrangement	Nokia Corporation	Ollikainen; Jani | Lehtola; Antero | Krogerus; Joonas | Rahola; Jussi	343	H01Q	20060630	0	100%	☐

Abstract: The invention relates to a radio antenna and, more specifically, to an internal multiband antenna for use e.g. in a portable telecommunication device, such as a mobile phone. In particularly the invention relates to an antenna module for a mobile terminal including a non-resonant antenna element, two resonant antenna elements each covering at least any one of a first, second, third or fourth frequency band, said two resonant elements are substantially in the same plane and define a planar surface wherein the two resonant elements are each positioned at a corner of the planar surface and the non-resonant element is positioned along an edge of the planar surface.
MainClaim: An apparatus comprising: a ground plane having a longitudinally dipole-like resonant mode; a first antenna configured to excite the dipole-like resonant mode of the ground plane and to feed against the ground plane; a second antenna configured to feed against the ground plane; and a third antenna configured to feed against the ground plane, where the second antenna and the third antenna are each configured to cover at least one of a first, second, third or fourth frequency band; wherein said second antenna and said third antenna are substantially in the same plane and define a planar surface, the second antenna is positioned at a first corner of the planar surface, said first corner defining a first edge, the third antenna is positioned at a second corner of the planar surface, said second corner defining a second edge, and the first antenna extends from the first edge to the second edge of the planar surface.

	Antennas with		Chiang; Bing | Springer; Gregory Allen | Kough;						

7,705,795	periodic shunt inductors	Apple Inc.	Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%
6,618,020	Monopole slot antenna	Nokia Corporation	Wang; Hanyang | Zheng; Ming | Zhang; Su Qing	343	H01Q	20011218	0	100%

Abstract: A monopole slot antenna is formed on a PCB as a slot with an open end at the edge of the PCB. The antenna is fed at its open end.
MainClaim: A resonant monopole slot antenna including a radiating slot with an open-end, which is dimensioned such that the slot is equivalent electromagnetically to an odd number of quarter wavelengths at the antenna's operating frequency, wherein the antenna's feed is arranged at the open-end of the radiating slot.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%
7,471,247	Antenna array and unit cell using an artificial magnetic layer	Nokia Siemens Networks, Oy	Saily; Jussi | Kaunisto; Mikko | Tretyakov; Sergei | Simovski; Constantin	343	H01Q	20060613	0	100%

Abstract: An antenna array includes a plurality of antenna unit cells, a ground plane, and at least one artificial magnetic layer AML unit cell. At least one AML unit cell is disposed between at least two adjacent ones of the antenna unit cells. The AML unit cells include a pair of split ring resonators through a ring dielectric layer, and the resonators are capacitively coupled to the a ground plane of the antenna array through a capacitor dielectric layer. The resonators are orthogonal to one another and to the ground plane, and more than one pair may be defined in each AML unit cell. Magnetic energy from the antenna unit cells induces an electric field in the resonators, and the resulting magnetic field is strongly coupled to the AML unit cell to inhibit mutual coupling between radiating elements by suppression of surface wave propagation.
MainClaim: An antenna array comprising: a plurality of antenna unit cells disposed in an array and spaced from one another; each antenna unit cell comprising a radiating element and a ground plane element; and at least one artificial magnetic layer AML unit cell disposed between at least two adjacent ones of the antenna unit cells, said AML unit cell comprising at least one pair of split-ring resonators capacitively coupled to the ground plane elements of the adjacent antenna unit cells.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	93%
7,109,923	Diversity antenna arrangement	Nokia Corporation	Ollikainen; Jani | Icheln; Clemens | Vainikainen; Pertti	343	H01Q	20040223	0	100%

Abstract: There is provided a method of operating, a diversity antenna system and arrangement for a mobile station such as mobile phone having a general ground element, the diversity antenna arrangement including at least a pair of antenna elements. Each antenna element comprises a generally L-shaped radiating element, and a conductive leg portion being operatively coupled to the generally L-shaped radiating element.
MainClaim: A diversity antenna arrangement for a mobile station having a general ground element, the diversity antenna arrangement including at least a pair of antenna elements, each antenna element comprising: a first elongated conductive element; a leg portion coupled to the first elongated conductive element, the leg portion containing a feed arrangement for feeding the antenna element against the ground element; and a second elongated conductive element; the first and the second elongated conductive elements being transversal to each other and in contact with each other; wherein said pair of the antenna elements is arranged so that the feed arrangements of said antenna elements are closer to each other than the second elongated conductive elements of the antenna elements.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%
7,183,983	Dual-layer antenna and method	Nokia Corporation	Ozden; Sinasi	343	H01Q	20050426	0	100%

Abstract: A wireless communication device has a housing, an antenna, and a preferably flexible substrate. The housing has first and opposed second major surfaces. The antenna is fixed to the flexible substrate, and is disposed within the housing. The antenna has first and second antenna portions. The first antenna portion is disposed nearer to the first major surface than to the second, and the second antenna portion is disposed nearer to the second major surface than to the first. Preferably, the antenna radiates in two different frequency bands, and radiation in the higher band occurs

entirely within the second antenna portion when the first major surface is a surface intended to mate with or lie adjacent to a user's head when the device is in use, so that the first antenna portion shields higher radiation that is received at or transmitted from the second antenna portion.
MainClaim: wireless communication device comprising: a housing defining a first major surface and an opposed second major surface; an antenna disposed within the housing, the antenna comprising a first antenna portion disposed nearer said first major surface than the second major surface, and a second antenna portion disposed nearer said second major surface than the first major surface, in a position such that at least a part of the first antenna portion lies between the second antenna portion and the first major surface of the housing; wherein the antenna is configured to radiate in a first frequency band using active elements of the first and second antenna portions, and to radiate in a second freguency band higher than the first frequency band with active elements of only the second antenna portion.

7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W. | Zavala; Juan | Caballero; Ruben	343	H01Q	20071213	8	94%	☐

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.
MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	94%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	94%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

6,201,501	Antenna configuration for a mobile station	Nokia Mobile Phones Limited	Arkko; Aimo | Lehtola; Antero | Pankinaho; Ilkka	343	H01Q	19990528	0	100%	☐

Abstract: An antenna configuration for a mobile communication device. The antenna configuration includes at least a first antenna configured so that the first antenna may be mounted near or between a speaker and a earpiece of a mobile station. In an embodiment of the invention, the first antenna comprises a substantially flat conductor including at least one hole for passing sound from the speaker to the earpiece of the mobile station. The first antenna is configured to receive GPS signals. A second antenna is implemented on the mobile station to transmit and receive cellular transmissions.
MainClaim: An antenna configuration for use with a mobile station having a circuit board and a case having at least one sound hole, said antenna configuration comprising:

a speaker mounted on the circuit board; and

a patch antenna mounted internal to the case between said speaker and the at least one sound hole, the patch antenna having a conductor hole, said patch antenna disposed adjacent to said speaker wherein sound from said speaker passes through said conductor hole to the at least one sound hole.

7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun | Hill; Robert J. | Schlub; Robert W. | Zavala; Juan | Caballero; Ruben	343	H01Q	20071213	8	94%	☐

Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.
MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	93%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. | Hill; Robert J. | Zavala; Juan | Caballero; Ruben	343	H01Q	20070104	11	93%	☐

Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.
MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the

hybrid planar-inverted-F and slot antenna.

7,411,559	Headset loop antenna	Nokia Corporation	Leinonen; Marko | Autti; Marko	343	H01Q	20040629	0	100%	☐

Abstract: A headset has a first and an optional second earpiece 12, 16 respectively coupled to a plug 30 via first and an optional second conductors 14, 20, 18, 22. An antenna loop section 36 has a first loop section 31 at least partially bound to a portion of the first conductor 20, and a second loop section 33 bound to at least a portion of the second conductor 22. Where bound, the first conductor and first loop section may be coaxial or side-by-side. The loop sections include inductors 42,44, and the conductors include ferrite rings 38,40 near the earpieces. A connector 24 mechanically holds the first and second conductors in proximity to one another, and also includes a conductive bridge 34 to electrically couple the first and second loop segments, which may be via a contact connection or a capacitive connection. Audio and RF signals are separated by frequency in a device 50 to which the headset is coupled.
MainClaim: A device comprising: a first earpiece with a first transducer; a second earpiece with a second transducer a plug defining contacts for coupling to a portable audio device; a first conductor coupled at one end to the first transducer and at an opposed end to at least one contact of the plug for providing a signal to the first transducer; a second conductor forming a closed conductive loop, wherein a first segment of the loop is mechanically bound to a portion of the first conductor and electrically insulated therefrom, the portion spaced from the earpiece, the second conductor coupled to at least one other contact of the plug; and a third conductor coupled at one end to the second transducer and at an opposed end to a contact of the plug for providing a signal to the second transducer; wherein a second segment of the loop is mechanically bound to a portion of the third conductor and electrically insulated therefrom, the portion of the third conductor spaced from the second earpiece, and further wherein the closed conductive loop is formed of the first segment of the loop, the second segment of the loop, and a conductive bridge disposed within a mechanical connector, wherein the mechanical connector is mechanically coupled to both the first and third conductors.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	9	92%	☐

Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.
MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

7,242,364	Dual-resonant antenna	Nokia Corporation	Ranta; Tero	343	H01Q	20050929	0	100%	☐

Abstract: A wide-band antenna comprises a series-resonant antenna and a resonant circuit. The antenna has a radiative element and a feed pin. The resonant circuit comprises an inductive element connected to the feed pin and a capacitor connected in parallel to the inductive element, which has a center tap for adjusting the impedance of the resonant circuit relative to the antenna impedance. The antenna can be a low-impedance PILA, a helix, monopole, whip, stub or loop antenna. The wide-band antenna can be used for the low (1 GHz range) or high (2 GHz range) band. The antenna can be made to simultaneously cover both 850 & 900 bands with the ground plane small enough to be implemented in a mobile phone or the like. The center tap is either connected to the feed of the antenna or connected to an RF front-end dependent upon the impedance level of the antenna element.
MainClaim: An antenna comprising: a radiative element; a feed pin electrically connected to the radiative element; and a matching network electrically connected to a ground plane, wherein the matching network comprises: an inductive element electrically connected to the feed pin; and a capacitor connected in parallel to the inductive element, wherein the inductive element has a center tap for determining impedance of the matching network relative to impedance of the antenna.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
7,298,339	Multiband multimode compact antenna system	Nokia Corporation	Ollikainen; Jani	343	H01Q	20060627	0	100%	☐

Abstract: An antenna system for use in a communications device, such as a mobile phone. The antenna system has a multiband GSM antenna operating at GSM850, GSM900, GSM 1800 and GSM 1900 that has a short-circuited section located between a separate UMTS antenna and a UMTS receive diversity antenna. As such, large electrical isolation between the two UMTS antennas can be achieved. The UMTS antennas can be short-circuited microstrip loop antennas, IFA, PIFA, ILA or PILA antennas. These antennas are well-isolated antennas instead of coupled antennas. As such, the diversity antenna is well isolated from the main antenna despite its close proximity to the main antenna. Well-isolated antennas have little mutual coupling and, therefore, are easier to design than coupled antennas, because isolated

antennas can be tuned independently from each other.
MainClaim: An antenna system comprising: a first antenna operating at a first frequency range, the first antenna having a substantially planar radiator, and a feed point; a second antenna operating at a second frequency range, the second antenna having a substantially planar radiator, and a feed point wherein the first and second frequency ranges have at least overlapping frequencies; and a third antenna operating at a third frequency range having frequencies lower than the second frequency range and the first frequency range, the third antenna having a substantially planar radiator, a feed point and a ground point, wherein the radiator of the third antenna has a first section, a second section, and a connecting section connecting the first section to the second section, and wherein the radiator of the first antenna is located between the first section and the second section of the radiator of the third antenna and the second section of the radiator of the third antenna is located between the first antenna and the second antenna.

7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing | Springer; Gregory Allen | Kough; Douglas B. | Ayala; Enrique | McDonald; Matthew Ian	343	H01Q	20071218	44	92%	☐
5,551,069	Radio apparatus having a combined antenna and clip	Nokia Mobile Phones Ltd.	Harrison; Peter D. | Hodgkinson; Sarah	455	H04B	19930802	0	100%	☐

Abstract: A radio apparatus, particularly a radio telephone has an antenna which, rather than extending away from the housing of the apparatus, is bent around the housing to overlap it in a clip-like formation. The antenna acts as a fixed antenna to receive and transmit radio signals but is less vulnerable to damage and breakage their conventional fixed antennas. The antenna also acts a clip enabling the apparatus to be clipped over a pocket or belt.
MainClaim: A radio apparatus comprising a housing having a first end and a second end, said housing enclosing a transceiver, and an antenna comprising a first radiating element, said first radiating element having a first end that is stationarily fixedly fastened to the housing and permanently coupled to the transceiver for transmitting and receiving radio signals without moving the first radiating element wherein a substantially stationary portion of the first radiating element overlaps a portion of the housing between said first and second ends of said housing which is deflectable in a general cantilever fashion relative to said housing and said first end of said radiating element, said portion of said first radiating element being sized, shaped and positioned relative to the housing to function as a pocket clip for removably attaching said housing to clothing of a user by capturing the clothing between said housing and said portion of said first radiating element.

6,054,955	Folded monopole antenna for use with portable communications devices	Apple Computer, Inc.	Schlegel, Jr.; Herbert | Blaney; Timothy J. | Difronzo; Charles M.	343	H01Q	19930823	1	92%	☐

Abstract: An antenna arrangement of sufficiently small size to be accommodated in the housing of a portable communications device includes a pair of spaced folded monopole antennas. Each antenna includes a first printed circuit board having a conducting surface that forms a ground plane. Mounted on the first circuit board is a second printed circuit board having a right-angled strip of conducting material, which forms a folded monopole radiating element. The folding of the monopole reduces its height, to thereby enable it to fit into small casings and the like. To compensate for the effects of the folded monopole on the electrical match, frequency bandwidth and electromagnetic fields, a shunt inductance is introduced between the monopole and the ground plane. The antennas are mounted within cavities that can be lined or coated with metallic material, to improve the radiation patterns of the antennas and isolate them from the electronic components of the communications system.
MainClaim: An antenna arrangement comprising at least two antennas spaced from one another by a distance related to a frequency band over which communications are to take place, each of said antennas including:

a metallic base plate which is disposed on a first printed circuit board and forms a ground plane;

a folded radiating element formed on a second printed circuit board and having a first linear portion which extends in a direction generally perpendicular to said base plate and a second linear portion connected to said first portion and extending in a direction generally parallel to said base plate;

a shunt inductance connected between said radiating element and said base plate; and

a cable having a first conductor connected to said first portion of said radiating element and a second conductor connected to said base plate.

6,100,847	Antenna with a transmit frequency band pass filter coupled to a radiative element	Nokia Mobile Phones Limited	Sointula; Erkka	343	H01Q	19960927	0	100%	☐

Abstract: An antenna module suitable for use with a radio telephone is disclosed. The antenna module 200 comprises an antenna 132, suitably multifilar configuration, and a support 118 which supports the antenna. The support also supports a filter 128, 124 which is electrically coupled to the antenna, and an amplifier 124 electrically coupled to the filter. The amplifier is non-fixedly coupled to radio circuitry housed within a radio housing 102. Typically, the antenna module can be non-fixedly coupled to the radio housing.
MainClaim: A dual mode hand portable radio telephone comprising:

a handset incorporating a first antenna for use with a communication system; and

a second antenna for use with a satellite communication system, the second antenna being couplable, in a removable manner, to the handset and comprising a radiative element, a filter electrically coupled to the radiative element and disposed proximal to the radiative element, an amplifier electrically coupled to the filter and a coupler for coupling in a removable manner the amplifier to the handset.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	92%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

6,707,428	Antenna	Nokia Corporation	Gram; Hans Erik	343	H01Q	20020524	0	100%	☐

Abstract: A broadband antenna comprises a driven element and a parasitic element resonant at different frequencies so that the antenna had a bandwidth encompassing both resonant frequencies. A further driven element, resonant at a third frequency, may be added so that the antenna is also usable in a different separate band.
MainClaim: An antenna comprising:

a substantially planar substrate;

a first driven element, resonant at a first frequency,

a second driven element, resonant at a second, lower frequency, and

a parasitic element associated with the first driven element,

a common ground terminal for connecting all of the elements to an external ground and

a single feed terminal for connection to an external signal feed,

wherein the elements and terminals comprise a conductive pattern on the substrate, the substrate includes a peripherally located stepped portion having a floor and the terminals are located at the floor of the stepped portion.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	93%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

6,941,409	Switching and connecting arrangement for coupling external and internal antennas with an expansion card	Nokia Mobile Phones, Ltd.	Puupponen; Marko | Väisänen; Ari | Verho; Jarmo	710	G06F	20010628	0	100%	☐

Abstract: A switching and connecting arrangement for coupling external and internal antennas, wherein the arrangement comprises at least a diversity switch arranged on a circuit board for selecting a first antenna or a second antenna. The arrangement also comprises a first integrated antenna switch arranged on said circuit board for selecting a first antenna and connecting it electrically to said diversity switch, wherein the first antenna switch is forced mechanically to select the first external antenna instead of the first internal antenna when it is coupled to said switch, and to select the first internal antenna when disconnected; a second integrated antenna switch arranged on said circuit board for selecting a second antenna and connecting it electrically to said diversity switch, wherein the second antenna switch is forced mechanically to select the second external antenna instead of the second internal antenna when it is coupled to said switch, and to select the second internal antenna when disconnected.
MainClaim: A switching and connecting arrangement for coupling external and internal antennas, wherein the arrangement comprises at least

a first integrated antenna switch arranged on said circuit board for selecting either a first internal antenna or a first external antenna to be coupled and connecting it electrically to a diversity switch, wherein the first integrated antenna switch is forced mechanically to select the first external antenna instead of the first internal antenna when the first external antenna is coupled to said first integrated antenna switch, and to select the first internal antenna when disconnected, and

a second integrated antenna switch arranged on said circuit board for selecting either a second internal antenna or a second external antenna to be coupled and connecting it electrically to said diversity switch, wherein the second integrated antenna switch is forced mechanically to select the second external antenna instead of the second internal antenna when the second external antenna is coupled to said second antenna switch, and to select the second internal antenna when disconnected, and

wherein said diversity switch is arranged on a circuit board for selecting the first integrated antenna switch or the second integrated antenna switch and for connecting said first and second integrated antenna switches in turns electrically to the circuit of a transceiver.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun | Caballero; Ruben	343	H01Q	20060905	10	92%	☐

Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.
MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

6,473,625	Earpiece acoustics	Nokia Mobile Phones Limited	Williams; David | Mercer; John	455	H04B	19981228	0	100%	☐

Abstract: A radiotelephone is provided which comprises a housing 1 having an earpiece port 4, a loudspeaker 6 and a resonator. The resonator comprises and earpiece path form the loudspeaker to the earpiece port4. Further, the resonator also comprises an internal cavity 7, which may be ring, and a path 8 from the loudspeaker 6 to the internal cavity 7, to provide a specified resonance performance.
MainClaim: A resonator for a radiotelephone having a housing with an earpiece port and a loudspeaker, the resonator comprising:

a housing, a first linear channel for channeling sound between the loudspeaker and the earpiece port, an internal cavity, and a second channel for channeling sound between the loudspeaker and the internal cavity and providing a specified resonance performance, and further comprising a compensation filter for compensating for the specified resonance performance, wherein the compensation filter comprises a digital signal processor.

2010/0046771	MULTIPLE-USE ACOUSTIC PORT	Apple Inc.	Gregg; Justin | Lee; Michael M. | Seguin; Chad	381	H03G	20080821	1	93%	☐

Abstract: Two or more acoustic transducers share the same acoustic port in a device. The acoustic properties--such as acoustic impedance and frequency response--of the shared acoustic port are matched to each of the two or more acoustic transducers. To accomplish acoustic impedance matching, a separate back volume is provided for each of the acoustic transducers, matched to that transducer. Frequency response matching can be accomplished by the design of the transducer itself, but also by providing an adjacent element in the acoustic system of the transducer. One transducer may serve as an element in the acoustic system of another transducer. Frequency response adjustment of an individual element may also affect acoustic impedance of the entire port-transducer system.
MainClaim: An audio device comprising:a housing;an acoustic port in said housing; anda plurality of acoustic transducers sharing said acoustic port; wherein:said acoustic port has at least one acoustic property;each of said plurality of acoustic transducers has at least one of said at least one acoustic property; andsaid at least one of said at least one acoustic property of each of said plurality of acoustic transducers is matched to a corresponding one of said at

least one acoustic property of said acoustic port.

2009/0316944	In-the-ear porting structures for earbug	Apple Inc.	Tiscareno; Victor M. | Stiehl; Kurt	381	H04R	20080618	2	93%	☐

Abstract: Systems, apparatus and methods are discussed for controlling resonance in in-the-ear headphones. Resonance effects resulting from wave reflection and superposition can occur in the cavity formed by the port tube of an earbud and the wearer's ear canal. In this invention, acoustically resistive structures are provided to create sound diffusion in the cavity. In one embodiment, a spring coil with several adjustable parameters is inserted into the port tube. In another embodiment, a pattern of grooves is carved into the inner surface of the port tube. Porous filters can also be used in conjunction with both of the embodiments described above. The result of providing the resistive structures in an earbud is a flattened cavity frequency response and improved sound quality.
MainClaim: An in-ear-canal headphone comprising:at least one transducer;an air chamber with a first opening and a second opening, wherein the first opening is configured to allow air flow between the air chamber and the at least one transducer, and the second opening is configured to allow air flow between the air chamber and a wearer's ear canal; andat least one acoustically resistive structure, located in the air chamber, configured to control resonance in the air chamber and in the ear canal.

6,810,238	Extension module for a portable device	Nokia Mobile Phones Ltd.	Deeds; Douglas | Bernhart; George	455	H24B	20001020	0	100%	☐

Abstract: An extender module (300) capable of being firmly mounted to a mobile station via mounting points (331, 332, 333, 334) is provided. Extender module has a base portion (305) which may support a conduit (320) which extends from a upward facing connector (323) to a downward facing connector (321). Shell bottom may have a connector that duplicates one or more contact pads (380) of a mobile station (390). A duplicated contact pad (321) may appear on the extender module shell bottom.
MainClaim: A mobile station cover for providing an extension to a mobile station having a docking connector, the mobile station cover comprising:

an upper portion and a base portion, the upper portion having a main face surface facing a user during normal operation and defining apertures associated with respective keys of a keypad, the upper portion extending in a first direction opposite form a second direction beyond a silhouette of the mobile station, wherein the upper portion is sized to match the silhouette of the mobile station, the base portion comprising:

a first side panel extending away from the main face surface;

a second side panel extending away from main face surface; and

a back panel joining the first side panel and the second side panel to form an enclosure;

a first electrical connector having at least one conductor facing in the first direction, the first electrical connector housed within the enclosure and supported by the base portion; and

a second electrical connector coupled to the conductor and facing the second direction, the second electrical connector housed within the enclosure and supported by the base portion.

2008/0166907	Connector assemblies	Apple Inc.	Sanford; Emery A. | Hankey; M. Evans | Prest; Christopher D. | Lim; Way Chet | Kato; Toshihiko	439	H01R	20071206	1	92%	☐

Abstract: A headset connector assembly that includes a connector plate, a casing, and electrical contact members is provided. The connector plate can have a first mating surface, a second mating surface, and at least two apertures existing between the first and the second mating surfaces. The casing can have a first side in contact with the first mating surface and a second side. The casing can include a protruding cavity member for each of the at least two apertures. Each protruding cavity member can extend from the first side and be constructed to fit within one of the at least two apertures. Each protruding cavity member can house an electrical contact member.
MainClaim: A headset connector assembly, comprising:a connector plate having a first mating surface, a second mating surface, and at least two apertures existing between the first and the second mating surfaces;a casing having a first side in contact with the first mating surface and a second side, the casing including a protruding cavity member for each of the at least two apertures, each protruding cavity member extending from the first side and constructed to fit within one of the at least two apertures; andelectrical contact members, wherein each protruding cavity member houses an electrical contact member.

6,995,659	Sound generating transducer	Nokia Corporation	Soto-Nicolas; Alberto	381	H04B	20031031	0	100%	☐

Abstract: A sound transducer comprises at least one sound unit based on at least one radially sound emitting diaphragm arranged in a substantially cylindrical or tubular form, the diaphragm including electromechanically converting material capable of creating sound by changing its physical state upon electrical excitation. In a single sound unit the diaphragm is arranged to be supported between an inner sound guiding sleeve and an outer sound guiding sleeve in order to form at least one axial acoustic channel between the diaphragm and at least one of the sleeves. At least at the exit side of the acoustic channel the axial ends of the diaphragm and the corresponding sound guiding sleeve are arranged to have mutual non-alignment in the plane perpendicular to the axis of the sound unit in order to reduce the acoustic mass that the acoustic channel represents. The invention further relates to a device with such a

transducer.
MainClaim: A sound transducer comprising at least one sound unit based on at least one radially sound emitting diaphragm arranged in a substantially cylindrical or tubular form, said diaphragm consisting at least partly of electromechanically converting material capable of creating sound by changing its physical state upon electrical excitation, wherein within a single sound unit said diaphragm is arranged to be supported between an inner sound guiding sleeve and an outer sound guiding sleeve, said sleeves having substantially similar radial cross-sectional shape than said diaphragm, in order to form at least one axial acoustic channel between the diaphragm and at least one of said sleeves, so that the sound waves generated by the diaphragm are arranged to be guided along said acoustic channel out from the sound unit, and that at least at the exit side of said acoustic channel the axial ends of the diaphragm and the corresponding sound guiding sleeve are arranged to have mutual non-alignment in the plane perpendicular to the axis of the sound unit in order to reduce the acoustic mass that said acoustic channel represents.

2009/0316944	In-the-ear porting structures for earbug	Apple Inc.	Tiscareno; Victor M. | Stiehl; Kurt	381	H04R	20080618	2	92%	☐

Abstract: Systems, apparatus and methods are discussed for controlling resonance in in-the-ear headphones. Resonance effects resulting from wave reflection and superposition can occur in the cavity formed by the port tube of an earbud and the wearer's ear canal. In this invention, acoustically resistive structures are provided to create sound diffusion in the cavity. In one embodiment, a spring coil with several adjustable parameters is inserted into the port tube. In another embodiment, a pattern of grooves is carved into the inner surface of the port tube. Porous filters can also be used in conjunction with both of the embodiments described above. The result of providing the resistive structures in an earbud is a flattened cavity frequency response and improved sound quality.
MainClaim: An in-ear-canal headphone comprising:at least one transducer;an air chamber with a first opening and a second opening, wherein the first opening is configured to allow air flow between the air chamber and the at least one transducer, and the second opening is configured to allow air flow between the air chamber and a wearer's ear canal; andat least one acoustically resistive structure, located in the air chamber, configured to control resonance in the air chamber and in the ear canal.

5,782,646	Combined connector contact	Nokia Mobile Phones Limited	Broadfield; Gary | Syrjala; Marrku	439	H01R	19970612	0	100%	☐

Abstract: A combined connector for providing charging current to a battery of a radio telephone comprises an electrically conductive charging pad contact, and a connector for receiving signals from a corresponding mating cable. The electrically conductive charging pad contact including a latching hole for releasably locking a mating cable against withdrawal from the combined connector.
MainClaim: A radio telephone combined connector for providing charging current to a battery of a radio telephone comprising a first electrically conductive charging pad contact, a second electrically conductive charging pad contact and a signal connector for receiving signals from a complementary cable connector, the first electrically conductive charging pad contact providing latching means for releasably retaining the cable connector against withdrawal from the combined connector, wherein the first and second charging pad contacts form part of a means which, when separately coupled to opposite terminals of the battery, forms a circuit loop from the first charging pad contact, through the battery, and to the second charging pad contact, wherein battery charging current can be provided through the first and second charging pad contacts.

2005/0202727	DC connector assembly	Apple Computer, Inc., a California Corporation	Andre, Bartley K. | Ive, Jonathan P. | Lee, Jong Min | Lim, Kan	439	H01R	20040312	1	93%	☐

Abstract: A DC connector arrangement is disclosed. The DC connector arrangement includes a DC plug and a DC receptacle that are configured to engage one another at more than one position. The DC plug and DC receptacle are also configured with a small contact distance to minimize the insertion and extraction forces that occur between the DC plug and the DC receptacle.
MainClaim: A DC connector, comprising: an outer shell; and an inner electrode disposed within the outer shell, the inner electrode having redundant power contacts that are electrically isolated within the same plane, the redundant power contacts being laterally spaced apart equally relative to a central axis, the outer shell and inner electrode being configured for 0/180 degree connection with a second outer shell and second inner electrode of a second DC connector along a mating axis, the outer shell and inner electrode of the DC connector having an axial contact distance with the second outer shell and second inner electrode of the second DC connector of less than 5 mm when fully mated so as to minimize the mating force between the DC connectors, and to allow angled insertion and extraction away from the mating axis during the 0/180 connection with the second DC connector.

7,094,089	DC connector assembly	Apple Computer, Inc.	Andre; Bartley K. | Ive; Jonathan P. | Lee; Jong Min | Lim; Kan	439	H01R	20040312	1	93%	☐

Abstract: A DC connector arrangement is disclosed. The DC connector arrangement includes a DC plug and a DC receptacle that are configured to engage one another at more than one position. The DC plug and DC receptacle are also configured with a small contact distance to minimize the insertion and extraction forces that occur between the DC plug and the DC receptacle.
MainClaim: A DC connector, comprising: a conductive outer shell; and an inner electrode disposed within the outer shell, the inner electrode having redundant power contacts electrically isolated within the same plane, the redundant power contacts being laterally spaced apart equally relative to a central axis, the outer shell and inner electrode being configured for 0/180 degree connection with a second outer shell and second inner electrode of a second DC connector along a mating axis, the outer shell and inner electrode of the DC connector having an axial contact distance with the second outer shell and second inner electrode of the second DC connector of less than 5 mm when fully mated so as to minimize the mating force between the DC connectors, and to allow angled insertion and extraction away from the mating axis during the 0/180 connection with the second DC connector.

			Lindberg; Phillip |					

7,467,948	Magnetic connector for mobile electronic devices	Nokia Corporation	Shirgaonkar; Sameer | Bjorninen; Kati	439	H01R	20060608	0	100%	☐

Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.
MainClaim: A connector for electrically and mechanically connecting a cable to a mobile electronic device comprising a first connector part disposed at the end of the cable and a second connector part disposed at the mobile electric device, wherein at least one of said first and said second connector parts includes a magnet that is magnetically attracted to magnetic material disposed on the other of the at least one of said first and said second connector parts such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the mobile electrical device, and wherein the electrical connection is established by the magnet touching on the magnetic material.

7,517,222	Magnetic connector for electronic device	APPLE Inc.	Rohrbach; Matthew Dean | Doutt; Mark Edward | Andre; Bartley K. | Lim; Kanye | Difonzo; John C. | Gery; Jean-Marc	439	H01R	20071022	1	93%	☐

Abstract: An electrical plug and receptacle relying on magnetic force to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one or both of the plug and receptacle can be a magnet, which is preferably a permanent rare earth magnet although electromagnets may also be used. The magnetic element on the plug or receptacle that does not include a magnet is composed of ferromagnetic material. When the plug and receptacle are brought into proximity, the magnetic attraction between the magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.
MainClaim: A magnetic connector system comprising: a first connector having a first plurality of electrical contacts and a plurality of magnets; and a second connector having a second plurality of electrical contacts and a magnetic element, the second plurality of electrical contacts being adapted to mate with the first plurality of electrical contacts when the first connector couples to the second connector, wherein the plurality of magnets of the first connector are proximally located and are arranged in opposing polarities with respect to each other so that when the first connector is brought in close proximity to the second connector, magnetic field lines travel through the magnetic element of the second connector from one of the plurality of magnets in the first connector to another one of the plurality of magnets in the first connector, thereby increasing magnetic attraction between the first connector and the second connector.

7,645,143	Magnetic connector for electronic device	Apple Inc.	Rohrbach; Matthew Dean | Doutt; Mark Edward | Andre; Bartley K. | Lim; Kanye | DiFonzo; John C. | Gery; Jean-Marc	439	H01R	20090324	2	93%	☐

Abstract: An electrical plug and receptacle relying on magnetic force to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one or both of the plug and receptacle can be a magnet, which is preferably a permanent rare earth magnet although electromagnets may also be used. The magnetic element on the plug or receptacle that does not include a magnet is composed of ferromagnetic material. When the plug and receptacle are brought into proximity, the magnetic attraction between the magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.
MainClaim: A magnetic connector system comprising: a first connector comprising: a first plurality of pins comprising at least a first power supply pin to convey a first power supply, a second power supply pin to convey a second power supply, and a signal pin to convey a signal; and a first magnetic element to magnetically attract a second magnetic element in a second connector, the first and second magnetic elements comprising an attraction plate and a plurality of magnets, where the plurality of magnets are proximally located and arranged in opposing polarities with respect to each other so that when the first connector is brought in close proximity to the second connector, magnetic field lines travel through the attraction plate from one of the plurality of magnets to another one of the plurality of magnets.

2009/0181556	MAGNETIC CONNECTOR FOR ELECTRONIC DEVICE	Apple Inc.	Rohrbach; Matthew Dean | Doutt; Mark Edward | Andre; Bartley K. | Lim; Kanye | DiFonzo; John C. | Gery; Jean-Marc	439	H01R	20090324	2	93%	☐

Abstract: An electrical plug and receptacle relying on magnetic force to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one or both of the plug and receptacle can be a magnet, which is preferably a permanent rare earth magnet although electromagnets may also be used. The magnetic element on the plug or receptacle that does not include a magnet is composed of ferromagnetic material. When the plug and receptacle are brought into proximity, the magnetic attraction between the magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.
MainClaim: An apparatus for electrically connecting an electronic device to an electrical relation, comprising:a first connector having a first magnetic element and having at least one first contact electrically connected to the electronic device; anda second connector positionable adjacent the first connector, the second connector having a second magnetic element and having at least one second contact electrically connected to the electrical relation,wherein the at least one first contact comprises a metallic contact extending from a first face of the first connector and biased relative to the first face, andwherein magnetic attraction between the first and second magnetic elements substantially maintains the first and second contacts in an electrically conductive relationship.

7,637,746	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip | Shirgaonkar; Sameer | Bjorninen; Kati	439	H01R	20081222	0	100%	☐

Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.
MainClaim: A device comprising a first connector part configured to interact with a second connector part disposed at the end of a cable to be connected to the device, wherein said first connector part includes a magnet that is magnetically attracted to magnetic material disposed on the second connector part and/or wherein magnetic material is disposed on said first connector part which is configured to magnetically attract a magnet disposed on the second connector part such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the device, and wherein the electrical connection is established by the magnet touching on the magnetic material.

7,645,143	Magnetic connector for electronic device	Apple Inc.	Rohrbach; Matthew Dean | Doutt; Mark Edward | Andre; Bartley K. | Lim; Kanye | DiFonzo; John C. | Gery; Jean-Marc	439	H01R	20090324	2	93%	☐

Abstract: An electrical plug and receptacle relying on magnetic force to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one or both of the plug and receptacle can be a magnet, which is preferably a permanent rare earth magnet although electromagnets may also be used. The magnetic element on the plug or receptacle that does not include a magnet is composed of ferromagnetic material. When the plug and receptacle are brought into proximity, the magnetic attraction between the magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.
MainClaim: A magnetic connector system comprising: a first connector comprising: a first plurality of pins comprising at least a first power supply pin to convey a first power supply, a second power supply pin to convey a second power supply, and a signal pin to convey a signal; and a first magnetic element to magnetically attract a second magnetic element in a second connector, the first and second magnetic elements comprising an attraction plate and a plurality of magnets, where the plurality of magnets are proximally located and arranged in opposing polarities with respect to each other so that when the first connector is brought in close proximity to the second connector, magnetic field lines travel through the attraction plate from one of the plurality of magnets to another one of the plurality of magnets.

2009/0181556	MAGNETIC CONNECTOR FOR ELECTRONIC DEVICE	Apple Inc.	Rohrbach; Matthew Dean | Doutt; Mark Edward | Andre; Bartley K. | Lim; Kanye | DiFonzo; John C. | Gery; Jean-Marc	439	H01R	20090324	2	93%	☐

Abstract: An electrical plug and receptacle relying on magnetic force to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one or both of the plug and receptacle can be a magnet, which is preferably a permanent rare earth magnet although electromagnets may also be used. The magnetic element on the plug or receptacle that does not include a magnet is composed of ferromagnetic material. When the plug and receptacle are brought into proximity, the magnetic attraction between the magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive

relationship.

MainClaim: An apparatus for electrically connecting an electronic device to an electrical relation, comprising:a first connector having a first magnetic element and having at least one first contact electrically connected to the electronic device; anda second connector positionable adjacent the first connector, the second connector having a second magnetic element and having at least one second contact electrically connected to the electrical relation,wherein the at least one first contact comprises a metallic contact extending from a first face of the first connector and biased relative to the first face, andwherein magnetic attraction between the first and second magnetic elements substantially maintains the first and second contacts in an electrically conductive relationship.

2010/0087071	ELECTROMAGNETIC CONNECTOR FOR ELECTRONIC DEVICE	Apple Inc.	DiFonzo; John C. | Andre; Bartley K. | Lim; Kanye | Rohrbach; Matthew Dean | Doutt; Mark Edward | Gery; Jean-Marc	439	H01R	20091208	1	93%	☐

Abstract: An electrical plug and receptacle relying on magnetic force from an electromagnet to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one of the plug or receptacle can be a magnet or ferromagnetic material. The magnetic element on the other of the plug or receptacle is an electromagnet. When the plug and receptacle are brought into proximity, the magnetic attraction between the electromagnet magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.

MainClaim: A connector comprising:a first contact;an electromagnet positioned on the connector; anda switch element coupled to the electromagnet to control energization of the electromagnet, wherein the switch element comprises a touch switch actuatable by a user,wherein the electromagnet is energizable to produce magnetic attraction with a magnetic element in a second connector and substantially maintain contact between the first contact and a second contact of the second connector in an electrically conductive relationship.

6,954,360	Thermally enhanced component substrate: thermal bar	Nokia Corporation	Nurminen; Janne T	361	H05K	20030822	0	100%	☐

Abstract: An IC package dissipates thermal energy using thermal bars. The IC package includes a substrate material with a die pad area, which is suitable to support an integrated circuit. A plurality of solder ball pads is disposed on a first surface of the substrate material and a plurality of conductive thermal bars radiate outwardly from the die pad area and extend to the edge of the substrate component to facilitate the dissemination of thermal energy from the die pad area to the substrate and/or printed wiring board.

MainClaim: An integrated circuit package comprising:

a substrate having a first surface and a second surface;

a die pad area, disposed on said first surface, said die pad area having dimensions suitable to mount an integrated circuit thereon;

a first thermally conductive structure disposed at least partially around said die pad area on said first surface;

a second thermally conductive structure underlying said first thermally conductive structure and disposed on said second surface;

a first plurality of thermally conductive bars on said first surface that radiate outwardly from the die pad area and that are thermally coupled to said first thermally conductive structure;

a second plurality of thermally conductive bars on said second surface underlying the first plurality of bars and that are thermally coupled to said second thermally conductive structure; and

a plurality of thermally conductive vias, at least one of the vias coupled between said first and second thermally conductive structures for providing thermal conductivity from the first surface of the substrate to the second surface of the substrate,

wherein each of the plurality of thermal bars conduct thermal energy from the die pad area to an associated one of said first thermally conductive structure and said second thermally conductive structure.

7,714,423	Mid-plane arrangement for components in a computer system	Apple Inc.	Reid; Gavin | Ali; Ihab | Ligtenberg; Chris | Hopkinson; Ron | Hardell; David	257	H01L	20050930	1	92%	☐

Abstract: A chip package for a computer system includes a substrate having a first region and a second region on a first surface, at least one die coupled to the first region on the first surface of the substrate and a main logic board coupled to the second region on the first surface of the substrate. By coupling the die and the main logic board on the

first surface of the substrate, an overall thickness of the chip package is reduced.
MainClaim: A chip package for a computer system, the chip package comprising: a substrate having a first region and a second region on a first surface; at least one die coupled to the first region on the first surface of the substrate; and a main logic board coupled to the second region on the first surface of the substrate; wherein the die and the main logic board are coupled to the same surface of the substrate; wherein the die and main logic board are positioned adjacent to each other via an enclosed opening in the main logic board through which the die can fit such that the main logic board surrounds the die and therefore occupies the same Z-dimension, instead of being stacked serially.

6,481,491	Cooling apparatus based on heat energy bound to working fluid in phase transition	Nokia Telecommunications Oy	Kabrell; Carl | Lehtiniemi; Reijo | Rantala; Jukka | Heikkila ; Timo | Tuamainen; Tapio	165	F28F	19991122	0	100%	☐

Abstract: The invention relates to a device for removing heat from an electronic component mounted on a circuit board. The device uses a working fluid circulated through cooling elements which are integrated into a metal matrix composite structure. The cooling elements are positioned and arranged within the structure to efficiently manage heat dissipation by evacuating the heat from the component in a multi-directional manner.
MainClaim: A cooling apparatus including a circulating working fluid, the circulating working fluid transitioning in phase to dissipate heat generated by at least one electronic component inserted in a circuit board, the cooling apparatus comprising:

a plurality of elongated cooling elements configured to contain the circulating working fluid, the plurality of cooling elements forming a matrix of cooling elements; and

a heat conducting material binding the matrix of the cooling elements,

wherein (i) at least one of the elements of the plurality of elements is arranged to extend parallel to a plane formed by the circuit board, (ii) at least one of the elements of the plurality of elements is arranged to extend parallel to the plane formed by the circuit board but not parallel to the elements of (i), and (iii) at least one element of the plurality of elements extends in a direction not parallel to the plane formed by the circuit board.

7,190,577	Cooling system with integrated passive and active components	Apple Computer, Inc.	Ali; Ihab	361	G06F	20040928	1	93%	☐

Abstract: A cooling system for a computer includes a heat spreader that is in thermal contact with at least one component in the computer, a frame casting, and at least one heat pipe coupled to the heat spreader and coupled to the frame casting for passively dissipating heat generated from the at least one component in the computer. By coupling the heat spreader to the frame casting via the at least one heat pipe, the conductive and convective heat transfer characteristics of the frame casting are utilized to provide additional passive cooling for the at least one component.
MainClaim: A cooling system for a computer comprising: a heat spreader that is in thermal contact with a heat generating component in the computer; a frame casting; and a heat pipe to passively dissipate heat generated from the heat generating component in the computer to the frame casting, the heat pipe including, a first portion that is co-planar with and in direct contact with the heat generating component; and a second portion that is in thermal contact with the frame casting, wherein the first portion of the heat pipe is embedded in the heat spreader and the second portion of the heat pipe extends from the heat spreader to the frame casting and is in thermal contact with the frame casting along a length of the frame casting, and wherein the first portion of the heat pipe has a circular cross-section, and the second portion of the heat pipe has a rectangular cross-section, a longer edge of the rectangular cross-section being in contact with the frame casting.

2008/0043428	METHOD AND APPARATUS FOR DISSIPATING HEAT IN A COMPUTER SYSTEM	APPLE COMPUTER INC.	Ali; Ihab	361	G06F	20070118	1	93%	☐

Abstract: A cooling system for a computer is provided. In one implementation, the cooling system includes a heat spreader that is in thermal contact with a heat generating component in the computer, a frame casting, and a heat pipe to passively dissipate heat generated from the heat generating component in the computer to the frame casting. The heat pipe includes a first portion that is co-planar with and in direct contact with the heat generating component, and a second portion that is in thermal contact with the frame casting.
MainClaim: A cooling system for a computer comprising: a heat spreader that is in thermal contact with a heat generating component in the computer; a frame casting; and a heat pipe to passively dissipate heat generated from the heat generating component in the computer to the frame casting, the heat pipe including, a first portion that is co-planar with and in direct contact with the heat generating component; and a second portion that is in thermal contact with the frame casting.

7,573,714	Method and apparatus for dissipating heat in a computer system	Apple Inc.	Ali; Ihab	361	H05K	20070118	1	92%	☐

Abstract: A cooling system for a computer is provided. In one implementation, the cooling system includes a heat spreader that is in thermal contact with a heat generating component in the computer, a frame casting, and a heat pipe to passively dissipate heat generated from the heat generating component in the computer to the frame casting. The heat pipe includes a first portion that is co-planar with and in direct contact with the heat generating component, and a second portion that is in thermal contact with the frame casting.

MainClaim: A cooling system for a computer comprising: a heat spreader that is in thermal contact with a heat generating component in the computer; a frame casting of the computer; a heat pipe to passively dissipate heat generated from the heat generating component in the computer to the frame casting, the heat pipe including, a first portion that is co-planar with and in direct contact with the heat generating component; and a second portion that is in thermal contact with the frame casting; and a radial fan to cool each of the heat pipe, the frame casting and the heat spreader by exhausting air from the computer through a vent in the frame casting, wherein the second portion of the heat pipe is disposed over the vent such that the air exhausted through the vent by the radial fan actively cools both the second portion of the heat pipe and the frame casting, and wherein a top surface of the heat spreader includes a plurality of channels pointing to a center of the radial fan to reduce resistance of air flow in the computer to the radial fan.

6,407,532	Method and apparatus for measuring battery charge and discharge current	Nokia Mobile Phones, Ltd.	Ruha; Antti	320	H01M	20010129	0	100%	☐

Abstract: Disclosed is a method for charging a battery and circuitry for performing the method. The method includes steps of: (a) generating a charging current (Ich) for a battery; (b) generating a replica current (Irep) of Ich, where Irep=Ich/N, where N>1; (c) measuring a voltage drop induced by Irep across a measurement resistance; and (d) using the measured voltage drop for controlling a magnitude of Ich. Preferably N is greater than about 10, more preferably N is greater than about 100, and in the most preferred embodiment N is in a range of about 100 to about 1000. The step of generating the charging current (Ich) includes a step of operating a first device having an input node coupled to a source of charging current, the step of generating the replica current (Irep) includes a step of operating a second device having an input node coupled to the source of charging current; wherein the first device and the second device are both driven with the same control signal. The control signal may be a pulse width modulated signal having a pulse width that is controlled as a function of the measured voltage drop across the measurement resistance, or a DC voltage having an adjustable voltage value. In the preferred embodiment the step of generating the replica current (Irep) includes a step of operating a servo loop to force a potential appearing at an output node of the second device to equal a potential appearing at an output node of the first device. A battery discharge measurement circuit is also disclosed, and operates in accordance with the same principles as the battery charging circuit.
MainClaim: A battery charging circuit, comprising:

a first device driven by a control signal and having an input node coupled to a source of charging current and an output node for coupling a charging current Ich to a battery to be recharged; and

a second device driven by said control signal and having an input node coupled to said source of charging current and an output node coupled to a measurement resistance, wherein a voltage drop across said measurement resistance due to a current flow Irep through said measurement resistance is sensed for controlling current flow through said first device, and wherein Irep is equal to Ich/N, where N is a scaling factor that is greater than unity.

7,598,711	Power source switchover apparatus and method	Apple Inc.	Krah; Christoph H. | Patel; Ronil	320	H02J	20051123	2	94%	☐

Abstract: An apparatus for switching from a first power supply to a second power supply. The embodiment may detect the charge or voltage of both the first and second power supply, and power a device from the power supply having the greatest voltage or charge. A single boost converter is used regardless of which power supply is providing power.
MainClaim: A battery-switching apparatus for switching between at least a first battery and a second battery, comprising: a first battery compartment operative to house a first battery and having a first positive terminal and a first negative terminal; a second battery compartment operative to house a second battery and having a second positive terminal and a second negative terminal; a single boost converter connected to each of the first and second battery compartments; wherein the boost converter is operative to draw power from one of the first and second battery compartments having the highest voltage; a first capacitor, wherein the first capacitor is enabled when a voltage of the first battery exceeds a voltage of the second battery; and a second capacitor, wherein the second capacitor is enabled when a voltage of the second battery exceeds a voltage of the first battery; the first positive terminal of the first battery compartment is connected directly to a first common node; the second positive terminal of the second battery compartment is connected directly to the first common node; the first negative terminal of the first battery compartment is connected to a first input of a comparator through a second common node; and the second negative terminal of the second battery compartment is connected to a second input of the comparator through a third common node.

2009/0309552	POWER SOURCE SWITCHOVER APPARATUS AND METHOD	Apple Inc.	Krah; Christoph H. | Patel; Ronil	320	H02J	20090818	2	94%	☐

Abstract: An apparatus for switching from a first power supply to a second power supply. Such an apparatus may determine which of the first and second power supplies has a greater voltage, and may power a device from the power supply having the greater voltage or charge. A single boost converter may be used regardless of which power supply is providing power.
MainClaim: A battery-switching apparatus for switching between at least a first battery and a second battery, comprising:a first battery compartment having a first positive terminal and a first negative terminal;a second battery compartment having a second positive terminal and a second negative terminal;a comparator operatively electrically connected to the first negative terminal, electrically connected to the second negative terminal, configured to compare a first voltage at the first negative terminal with a second voltage at the second negative terminal, and configured to generate an output based on such comparison; anda single boost converter electrically connected to each of the first and second battery compartments, the boost converter operative to draw power from a one of the first and second battery compartments based on the output of the comparator.

7,653,366	Hybrid switched mode/linear power amplifier power supply for use in polar transmitter	Nokia Corporation	Grigore; Vlad Gabriel	455	H01Q	20060405	0	100%	☐

Abstract: In one aspect this invention provides a DC-DC converter that has a switch mode part for coupling between a DC source and a load, the switch mode part providing x amount of output power; and that further has a linear mode part coupled in parallel with the switch mode part between the DC source and the load, the linear mode part providing y amount of output power, where x is preferably greater than y, and the ratio of x to y may be optimized for particular application constraints. In a further aspect there is a radio frequency (RF) transmitter (TX) for coupling to an antenna, where the TX has a polar architecture having an amplitude modulation (AM) path coupled to a power supply of a power amplifier (PA) and a phase modulation (PM) path coupled to an input of the PA, where the power supply includes the switch mode part for coupling between a battery and the PA and the linear mode part coupled in parallel with the switch mode part between the battery and the PA.
MainClaim: A DC-DC converter, comprising: a switch mode part between a DC source and a load, the switch mode part is configured to provide x amount of output power; and a linear mode part in parallel with the switch mode part between the same or a different DC source and the load, the linear mode part configured to provide y amount of output power, where x is greater than y, and the ratio of x to y is optimized for particular application constraints, where the linear mode part exhibits a faster response time to a required change in output voltage than the switch mode part, where the linear mode part compensates at least in part for load variations, wherein the switch mode part is configured to be switchable between a slave mode controlled by the linear mode part and a master mode.

7,408,403	Circuits and methods for amplifying signals	Apple Inc.	Farrar; Douglas M. | Sander; Wendell B.	330	H03F	20060609	4	94%	☐

Abstract: The present invention discloses a bus pumping compensation for a pulse modulation circuit such as class D modulators. The compensation according to the present invention provides a compensation current controlled by the output voltage, with the compensation characteristics matching the reverse current for improving circuit efficiency. Embodiments of the present invention also disclose a designable compensation circuit, comprising a linear compensation current, offering a good trade-off between circuit efficiency and ease of design. The present invention compensation circuit is preferably employed in a class D amplifier with substantial reverse current, and most preferably added into a LDO power supply in a class D amplifier circuit to prevent reverse current problem. The disclosed class D amplifier circuit is preferably used in an audio media player.
MainClaim: A method for compensating for reverse power supply current of a modulator, the method comprising: generating a voltage-dependent compensation current for the power supply to compensate for the reverse current, the compensation current controlled by an output voltage of the modulator circuit.

7,058,373	Hybrid switched mode/linear power amplifier power supply for use in polar transmitter	Nokia Corporation	Grigore; Vlad Gabriel	455	H04B	20040916	0	100%	☐

Abstract: In one aspect this invention provides a DC-DC converter that has a switch mode part for coupling between a DC source and a load, the switch mode part providing x amount of output power; and that further has a linear mode part coupled in parallel with the switch mode part between the DC source and the load, the linear mode part providing y amount of output power, where x is preferably greater than y, and the ratio of x to y may be optimized for particular application constraints. In a further aspect there is a radio frequency (RF) transmitter (TX) for coupling to an antenna, where the TX has a polar architecture having an amplitude modulation (AM) path coupled to a power supply of a power amplifier (PA) and a phase modulation (PM) path coupled to an input of the PA, where the power supply includes the switch mode part for coupling between a battery and the PA and the linear mode part coupled in parallel with the switch mode part between the battery and the PA.
MainClaim: A radio frequency (RF) transmitter (TX) for coupling to an antenna, said TX having a polar architecture comprised of an amplitude modulation (AM) path coupled to a power supply of a power amplifier (PA) and a phase modulation (PM) path coupled to an input of the PA, where said power supply comprises a switch mode part for coupling between a power source and the PA, the switch mode part providing x amount of output power, said power supply further comprising a linear mode part coupled in parallel with the switch mode part between the power source and the PA, the linear mode part providing y amount of output power, where x is greater than y, and the ratio of x to y is optimized for particular application constraints, and where the linear mode part exhibits a faster response time to a required change in output voltage than the switch mode part.

7,408,403	Circuits and methods for amplifying signals	Apple Inc.	Farrar; Douglas M. | Sander; Wendell B.	330	H03F	20060609	4	94%	☐

Abstract: The present invention discloses a bus pumping compensation for a pulse modulation circuit such as class D modulators. The compensation according to the present invention provides a compensation current controlled by the output voltage, with the compensation characteristics matching the reverse current for improving circuit efficiency. Embodiments of the present invention also disclose a designable compensation circuit, comprising a linear compensation current, offering a good trade-off between circuit efficiency and ease of design. The present invention compensation circuit is preferably employed in a class D amplifier with substantial reverse current, and most preferably added into a LDO power supply in a class D amplifier circuit to prevent reverse current problem. The disclosed class D amplifier circuit is preferably used in an audio media player.
MainClaim: A method for compensating for reverse power supply current of a modulator, the method comprising: generating a voltage-dependent compensation current for the power supply to compensate for the reverse current, the compensation current controlled by an output voltage of the modulator circuit.

	Apparatus and method for reducing								

5,682,093	the power consumption of an electronic device	Nokia Mobile Phones Ltd.	Kivela; Seppo	323	G05F	19960408	0	100%	☐

Abstract: The invention relates to a method for reducing power consumption in an electronic device which includes a voltage regulator that has a transistor (T1) connected in series as regards the load current. The invention also relates to such a regulator and an electronic device using such a regulator. The base current (Ib) of the series transistor (T1) of the regulator is arranged to have different values according to how big a load current is required of the regulator. For that purpose, the regulator includes an extra intermediate input (Vsx) which switches the base current (Ib) to be conducted through an alternative current path (Re2, D1, T4) when the maximum load current is required.

MainClaim: A method for reducing an amount of power consumed by an electronic device, the electronic device comprising device, the electronic device comprising at least one voltage regulator and a controller located externally to the voltage regulator, the voltage regulator including a transistor, the electronic device being operable in any one of at least two states, wherein in a first one of the states a first amount of load current is required to flow through the transistor to power at least a first one and a second one of a plurality of loads of the electronic device, and wherein in a second one of the states a second, lesser amount of load current is required to flow through the transistor to power only the first one of the plurality of loads of the electronic device, wherein for each of the states the transistor is connected in series with the load current flowing through the transistor, the method comprising the steps of:

detecting, with the controller of the electronic device, a command input into the controller indicating that the electronic device begin operating in the second state; and

reducing an amount of base current flowing through a base of the transistor, in response to a detection of the command input into the controller.

2009/0309552	POWER SOURCE SWITCHOVER APPARATUS AND METHOD	Apple Inc.	Krah; Christoph H. | Patel; Ronil	320	H02J	20090818	2	92%	☐

Abstract: An apparatus for switching from a first power supply to a second power supply. Such an apparatus may determine which of the first and second power supplies has a greater voltage, and may power a device from the power supply having the greater voltage or charge. A single boost converter may be used regardless of which power supply is providing power.

MainClaim: A battery-switching apparatus for switching between at least a first battery and a second battery, comprising:a first battery compartment having a first positive terminal and a first negative terminal;a second battery compartment having a second positive terminal and a second negative terminal;a comparator operatively electrically connected to the first negative terminal, electrically connected to the second negative terminal, configured to compare a first voltage at the first negative terminal with a second voltage at the second negative terminal, and configured to generate an output based on such comparison; anda single boost converter electrically connected to each of the first and second battery compartments, the boost converter operative to draw power from a one of the first and second battery compartments based on the output of the comparator.

7,598,711	Power source switchover apparatus and method	Apple Inc.	Krah; Christoph H. | Patel; Ronil	320	H02J	20051123	2	92%	☐

Abstract: An apparatus for switching from a first power supply to a second power supply. The embodiment may detect the charge or voltage of both the first and second power supply, and power a device from the power supply having the greatest voltage or charge. A single boost converter is used regardless of which power supply is providing power.

MainClaim: A battery-switching apparatus for switching between at least a first battery and a second battery, comprising: a first battery compartment operative to house a first battery and having a first positive terminal and a first negative terminal; a second battery compartment operative to house a second battery and having a second positive terminal and a second negative terminal; a single boost converter connected to each of the first and second battery compartments; wherein the boost converter is operative to draw power from one of the first and second battery compartments having the highest voltage; a first capacitor, wherein the first capacitor is enabled when a voltage of the first battery exceeds a voltage of the second battery; and a second capacitor, wherein the second capacitor is enabled when a voltage of the second battery exceeds a voltage of the first battery; the first positive terminal of the first battery compartment is connected directly to a first common node; the second positive terminal of the second battery compartment is connected directly to the first common node; the first negative terminal of the first battery compartment is connected to a first input of a comparator through a second common node; and the second negative terminal of the second battery compartment is connected to a second input of the comparator through a third common node.

6,229,724	Power supply circuit featuring secondary side microcontroller for controlling a primary side power factor correction circuit	Nokia Corporation	Virtanen; Hannu	363	H02M	19991214	0	100%	☐

Abstract: A display monitor power supply circuit has a primary side with a power factor correction circuit, a secondary side with a microcontroller for controlling a display monitor, and an isolation interface arranged between the primary side and the secondary side. The microcontroller provides a power correction circuit control signal to the power factor correction circuit for controlling a power correction factor of the display monitor power supply circuit. In operation, the power correction circuit control signal automatically switches the power factor correction circuit to an off state during a power save state. The isolation interface may also provide a supply voltage directly to the power factor correction circuit. The isolation interface may include an isolator circuit for two-way communication signals between the primary

side and the microcontroller to fully control the power factor correction circuit.
MainClaim: A display monitor power supply circuit having a primary side with a power factor correction circuit, a secondary side with a display monitor, and an isolation interface arranged between and isolating the primary side from the secondary side,

characterized in that the secondary side has a microcontroller for controlling the display monitor and for providing a power correction circuit control signal to the power factor correction circuit for controlling a power correction factor of the display monitor power supply circuit.

7,076,670	Two stage power supply circuit for independently supplying power to first and second components of a digital processing system	Apple Computer, Inc.	Krause; Peter | Chong; Phuan Boon	713	G06F	20000907	1	94%	☐

Abstract: A power supply circuit for a digital processing system. A first stage of the power supply circuit is used to generate power for a first component of the digital processing system and to drive a second stage of the power supply circuit. The second stage of the power supply circuit supports a second component of the digital processing system. The first and second stages of the power supply circuit are electrically connected to each other.
MainClaim: A power supply circuit for a digital processing system, the circuit comprising: a first stage having a first output coupled to a first component of the digital processing system, and a second output which is different from the first output, wherein said second output has an output winding; a second stage associated with a second component of the digital processing system, and having an input winding, wherein said input winding of said second stage is directly connected to said output winding of said first stage through a two wire bus; and wherein said first stage drives said second stage using the direct two-wire bus connection between said output winding of the second output and said input winding of said second stage, wherein the second stage transforms the second output to generate a third output to drive the second component, and wherein the first output is independent of the second stage.

7,688,046	Power converters having varied switching frequencies	Apple Inc.	Li; Li | Patel; Ronil D.	323	H02M	20050725	1	93%	☐

Abstract: Systems and techniques for performing power conversion operations in a portable device are used to convert an input voltage to a voltage at an output. The conversion operations use a two-stage conversion to convert the input voltage to a first voltage and to convert the first voltage to a second voltage. A switching frequency is altered with changes in the input voltage. The switching frequency is selected based on the input voltage level and/or to maintain a substantially consistent ripple at the output, which can correspond to the first voltage and/or the second voltage.
MainClaim: A method comprising: converting an input voltage from a battery to a voltage at an output using a two-stage conversion to convert the input voltage to a first voltage and to convert the first voltage to a second voltage; determining a decrease in the input voltage from the battery; and decreasing a switching frequency in the two-stage conversion based, at least in part, on the decreased input voltage from the battery to provide improved power efficiency relative to use of a constant switching frequency, wherein decreasing the switching frequency is performed in response to a detected change in the ripple at the output to maintain a substantially consistent ripple at the output.

5,446,364	Fast charging arrangement	Nokia Mobile Phones Ltd.	Naskali; Matti	320	H02J	19920214	0	100%	☐

Abstract: In a fast charging arrangement between a charger (20) and a battery-powered device (20) the charging current of the battery (36) is controlled with a logic arrangement (38) as a function of the charging state and/or temperature of the battery. According to the invention, the connection (10, 12) between the charger (10) and the battery-powered device (30) is bipolar, the logic arrangement (38) having been disposed in the battery-powered device (30), advantageously in a mobile telephone.
MainClaim: A fast charging apparatus, comprising:

a battery-powered radio telephone device having a battery to be recharged;

a charger means separate from the battery powered radio telephone for charging the battery of the battery-powered radio telephone device with charging current and voltage, said charger means having a constant-current generator for generating a constant current; and

a connection between said charger and said battery-powered radio telephone device, said connection having only two spaced apart conductors extending and making connection between said charger and said battery-powered radio telephone device; the battery-powered radio telephone device comprising:

a shunt switch in electrical connection with a charger connection of said two-conductor connection and being controllable between open and closed positions,

means for controlling, as a function of at least a charging state and temperature of the battery which powers said battery-powered radio telephone device, the position of said shunt switch, said controlling means including a logic arrangement within the battery-powered radio telephone device; and

means for conducting the constant current to the battery from the charger connection in response to said shunt switch being in said closed position.

5,420,493	Power supply and battery charger	Apple Computer, Inc.	Hargadon; Andrew | Young; Steven J. | Tonomura; Kihachiro | Wallgren; Markus | Gurries; Mark	320	H01M	19920630	1	92%	☐

Abstract: An integrated AC adapter and battery charger is disclosed. The apparatus comprises an AC adapter unit for converting AC power to a DC power and a battery charging apparatus coupled to the AC adapter unit for charging a battery pack. The battery charging apparatus further comprises a microcontroller for sensing the condition of the battery pack or tacks being charged, a memory for storing the proper charging profile for a number of different types of battery packs, and a charging current generator capable of generating a varying charging current based on the microcontroller's determination of the battery's condition and the charging profile stored in the memory.
MainClaim: A method for charging a battery pack having a first memory for indicating a multiplicity of battery identification data comprising at least a serial number identifying the battery pack, the method comprising the steps of:

inserting the battery pack into a battery charger further coupled to a computer, said battery charger comprising at least a controller, a second memory for storing battery identification data corresponding to a multiplicity of known battery packs, and a charging current generator;

reading the battery identification data of said battery pack from said first memory with the controller;

determining whether the battery pack inserted in said battery charger is one of said known battery packs by comparing said battery identification data read from the battery pack against said battery identification data stored in said battery charger;

reading via said controller from the second memory at least one charging profile corresponding to the battery identification data read from said first memory,

and

charging the battery pack with an electrical current according to the charging profile by varying the electrical current produced by the charging current generator.

5,926,071	Minimization of the power consumption in an oscillator	Nokia Mobile Phones	Kukkonen; Osmo	331	H03B	19980107	0	100%	☐

Abstract: A method is presented for minimizing the current consumption and the operating voltage of a voltage controlled oscillator. According to the invention the oscillator's (Q2) output signal (RFout) is detected as a DC voltage signal (Vgs) in a clamp/voltage multiplier circuit (U1, U2), preferably after a isolating amplifier (Q1). This detected signal is supplied in a feedback loop to a field effect transistor (FET1) controlling the oscillator's (Q2) current, whereby the field effect transistor controls the current (Ib) in the main current path to a predetermined minimum value. In this superimposed arrangement of the oscillator and the isolating amplifier the supply voltage (B) can be minimized by arranging, regarding the DC current, the isolating amplifier (Q1) in parallel with the field effect transistor (FET1) in the emitter branch of the oscillator (Q2).
MainClaim: A method for controlling a current (Ib) of a voltage controlled oscillator of an oscillator circuit to maintain the current (Ib) at a predetermined level, comprising the steps of:

generating a DC voltage control signal which is proportional to an output level of the oscillator;

applying the generated DC voltage control signal in a negative feedback loop to a circuit element (FET1) for a controlling of the current of the oscillator;

providing an isolating amplifier for the oscillator, the isolating amplifier having a first transistor, the oscillator having a second transistor;

arranging said first and said second transistors in a series circuit allowing said current (Ib) to flow through said first and said second transistors;

connecting said circuit element (FET1) to one of said first and said second transistors;

controlling the current (Ib) by the circuit element (FET1); and

detecting said output level of the oscillator at said isolating amplifier for reducing a required magnitude of supply voltage to the series circuit.

7,408,403	Circuits and methods for amplifying signals	Apple Inc.	Farrar; Douglas M. | Sander; Wendell B.	330	H03F	20060609	4	92%	☐

Abstract: The present invention discloses a bus pumping compensation for a pulse modulation circuit such as class D

modulators. The compensation according to the present invention provides a compensation current controlled by the output voltage, with the compensation characteristics matching the reverse current for improving circuit efficiency. Embodiments of the present invention also disclose a designable compensation circuit, comprising a linear compensation current, offering a good trade-off between circuit efficiency and ease of design. The present invention compensation circuit is preferably employed in a class D amplifier with substantial reverse current, and most preferably added into a LDO power supply in a class D amplifier circuit to prevent reverse current problem. The disclosed class D amplifier circuit is preferably used in an audio media player.
MainClaim: A method for compensating for reverse power supply current of a modulator, the method comprising: generating a voltage-dependent compensation current for the power supply to compensate for the reverse current, the compensation current controlled by an output voltage of the modulator circuit.

6,204,727	Precision controlled RF power detector circuit	Nokia Telecommunications OY	Wey; Chia-Sam | Tran; Kim Anh | Neitiniemi; Jukka-Pekka	329	H03K	19990920	0	100%	☐

Abstract: A controlled detector circuit for generating a detector current to the input of a selected circuit. An unwanted operational voltage is generated on the input of the selected circuit affecting the precision of the detector circuit. The controlled detector circuit comprises a detector circuit having an RF input for detecting a RF signal and a detector output for providing the detector current. Operation of the detector circuit generates a voltage drop affecting the precision of the detector current. A control circuit having a control output connected to the detector output generates a control voltage for reducing the unwanted parameters affecting the precision of the detector current.
MainClaim: A controlled detector circuit for generating a detector current to the input of a selected circuit, wherein an unwanted operational voltage is generated on the input of the selected circuit in operation of the selected circuit; said controlled detector circuit comprising:

a detector circuit having an RF input for detecting an RF signal and a detector output for providing the detector current in response to said RF signal, said detector output coupled to the input of the selected circuit, wherein operation of said detector circuit generates a voltage drop which affects said detector current, and, further, wherein the operational voltage on the input of the selected circuit affects said detector current; and

a control circuit having a control output coupled to said detector output, said control circuit generating a control voltage on said control output, said control voltage for compensating the effects of said voltage drop and said operational voltage on the detector current.

7,408,403	Circuits and methods for amplifying signals	Apple Inc.	Farrar; Douglas M. | Sander; Wendell B.	330	H03F	20060609	4	92%	☐

Abstract: The present invention discloses a bus pumping compensation for a pulse modulation circuit such as class D modulators. The compensation according to the present invention provides a compensation current controlled by the output voltage, with the compensation characteristics matching the reverse current for improving circuit efficiency. Embodiments of the present invention also disclose a designable compensation circuit, comprising a linear compensation current, offering a good trade-off between circuit efficiency and ease of design. The present invention compensation circuit is preferably employed in a class D amplifier with substantial reverse current, and most preferably added into a LDO power supply in a class D amplifier circuit to prevent reverse current problem. The disclosed class D amplifier circuit is preferably used in an audio media player.
MainClaim: A method for compensating for reverse power supply current of a modulator, the method comprising: generating a voltage-dependent compensation current for the power supply to compensate for the reverse current, the compensation current controlled by an output voltage of the modulator circuit.

5,254,931	Battery charging apparatus in a portable electronic apparatus	Nokia Mobile Phones Ltd.	Martensson; Nils E.	320	H02J	19910401	0	100%	☐

Abstract: Apparatus for charging a NiCd battery in a portable electronic apparatus, specifically a radio telephone. A charger includes a trickle charge circuit and fast charge circuit which can be selectively enabled by a switch under the control of a signal V_c generated by a voltage generator within the telephone. The charge mode may be selected automatically from within the telephone, e.g. depending on the charge state of the battery as detected by the charge state sensor. Additionally or alternatively the charge mode may be selected manually by depressing appropriate keys on the telephone. Preferably the charge mode is enabled by selecting an appropriate menu which is indicated visually on the display area of the telephone. This charging apparatus facilitates the adoption of a battery charging regime which optimizes battery life.
MainClaim: A system for charging a battery in a portable electronic apparatus, the portable electronic apparatus comprising visual display means, the system comprising:

means operable in at least two different modes for supplying a charging current to the battery,

wherein the portable electronic apparatus is provided with means, operably connectable to the means for supplying a charging current, for selectively enabling the different charging modes,

said enabling means comprising means for enabling a user to select an appropriate one of several pre-set operating instructions stored in memory and indicated on said visual display means.

	METHOD AND APPARATUS FOR MAINTAINING A		Mahowald; Peter						

2009/0289603	BATTERY IN A PARTIALLY CHARGED STATE	Apple Inc.	H.	320	H02J	20080521	1	92%	☐

Abstract: A method and apparatus for controlling a battery charge. The embodiment may measure the charge level of a battery and determine if the charge level equals or exceeds a threshold. When the battery charge level does not equal or exceed the threshold, the battery may be charged.
MainClaim: A method for controlling a battery charge, comprising:measuring a battery charge level;determining if the battery charge level of the battery equals or exceeds a threshold; andin the event the battery charge level does not equal or exceed the threshold, charging the battery.

6,531,845	Battery charging	Nokia Mobile Phones Limited	Kerai; Kanji | Tuulos; Kalle	320	H02J	20010525	0	100%	☐

Abstract: A battery charging circuit is described in which power is derived from a communications port such as a USB interface (22) and is supplied to a rechargeable battery of a communications device. The communications device, which may be a mobile radio telephone, can be charged from the power supply or internal battery of a laptop computer equipped with a USB port and connected thereto with a suitable cable thereby avoiding the need for a user to carry a dedicated battery charger for the radio telephone.
MainClaim: A battery powered apparatus comprising:

a charging circuit for charging a rechargeable battery;

a processor for controlling the battery operated apparatus and for communicating with an external electronic device including an electrical power supply;

at least one conductor for connection to the external electronic device which receives data or control signals including when the charging circuit charges the rechargeable battery;

a user input for receiving a user command;

means for determining if charging the rechargeable battery using the electrical power supply of the external electronic device is allowed, based on the user command; and wherein

the charging circuit receives electrical power from the electrical power supply of the external electronic device through the at least one conductor and charges the battery with the received electrical power if the charging of the rechargeable battery using the electrical power supply of the external electronic device is allowed.

2010/0007473	INTELLIGENT POWER-ENABLED COMMUNICATIONS PORT	Apple Inc.	Fadell; Anthony	340	G05B	20090508	1	92%	☐

Abstract: A port that supplies power in accordance with a standard is equipped with a variable power supply and a power line communications module. Power line signals on the power conductors are used to allow a port controller to negotiate power requirements with peripheral devices and the power supply is adjusted accordingly. If the peripheral device does not support such negotiation, power is delivered in accordance with the standard. The port may be a data communications port that supplies power and data in accordance with a standard.
MainClaim: A method of operating a communications port of a host device to provide power and data connectivity to a peripheral device, said communications port having power conductors and data conductors; said method comprising:establishing a communications channel on said power conductors using a power line communications protocol;attempting to negotiate, between said host device and said peripheral device on said communications channel, an amount of power to be delivered by said host device to said peripheral device via said power conductors; andupon conclusion of successful negotiation, delivering said amount of power via said power conductors.

5,001,372	Circuitry for making a differential output single-ended	Nokia-Mobira Oy	Nyqvist; Jouni	327	H03B	19890324	0	100%	☐

Abstract: Balanced mixers with respect to their output stages are created by making the differential mixer output (A, B) a single-ended output (C) without a matching transformer. The circuitry can be used in all balanced transistor mixers, provided that both sides of the differential output are available for use.
MainClaim: A circuit in which the differential outputs of a balanced mixer are converted into a single ended output, characterized in that the circuit comprises a transistor current mirror including at least two transistors, one of said transistors being connected as an amplifier, each transistor of said current mirror being coupled in parallel to at least one resistance, said resistance selected so that voltage loss caused by collector currents in said resistances are greater than the base-emitter voltage of said current mirror transistors, the collector of each current mirror transistor being coupled to one of two branches of the differential outputs of the mixer, respectively, and the output of said current mirror transistor being at the collector of said current mirror transistor connected as an amplifier.

5,504,458	CMOS class AB amplifier for driving capacitive and resistive loads	Apple Computer, Inc.	Van Brunt; Roger | Oprescu; Florin	330	H03F	19940930	1	93%	☐

Abstract: The class AB amplifier is configured to provide low quiescent current while achieving high internal switching rates. The buffer is connected to a large external capacitance which provides external compensation. The amplifier includes an input stage which converts differential voltages to current. An output stage provides an output current and also provides a feedback current into the input stage. A biasing network provides voltage for biasing various nodes

within the amplifier. Cross-coupling is provided within the output stage for achieving a low quiescent current. A pair of current limiting circuits, one for p-channel element and another for n-channel elements, is also provided.
MainClaim: An amplifier comprising:

an input stage for converting a differential between a pair of input voltages into a current, said input stage having p-channel and n-channel transistors providing a differential output;

an output stage for providing an output voltage, said output stage having first and second p-channel transistors, and first and second n-channel transistors; wherein

said p-channel transistor of said input stage, said first p-channel transistor of said output stage, said first n-channel transistor of said output stage, and said n-channel transistor of said input stage are connected in series between a high voltage source and a ground;

said second p-channel and n-channel transistors of said output stage are connected in series between said high voltage source and said ground; and

said first and second p-channel and n-channel transistors of said output stage are cross-coupled with a drain of said first p-channel transistor of said output stage connected to a gate of said second n-channel transistor of said output stage and with a drain of said first n-channel transistor of said output stage connected to a gate of said second p-channel transistor of said output stage; and wherein

sizes of said transistors are selected to provide a net amplification of an input differential voltage to said output voltage and to provide a stable quiescent output of about zero volts.

5,802,351	Data interface	Nokia Mobile Phones Limited	Frampton; Simon	703	G06F	19960205	0	100%	☐

Abstract: A data buffer (23) is positionable between processing devices, such as microcontroller (21) and a digital signal processor (22). Messages are transmitted between the devices via a dual port RAM buffer (31). The amount of storage allocated for transfers in each direction is adjustable via a size register (42) so that, at any particular time, the optimum amount of storage is provided for a transfer in a particular direction. The buffer is particular suited to applications in mobile telephones.
MainClaim: A data buffer positionable between a first processing means and a second processing means, comprising:

storage means arranged to buffer data signals generated by each of said processing means for reception by the other of said processing means, and

programmable storage allocation means arranged to adjust an amount of storage provided by said storage means for buffering data signals generated by each of said processing means;

wherein said programmable storage allocation means is comprised of address generating means for generating addressing signals for the writing of data to said storage means or the reading of data from said storage means; and

wherein said address signal generating means is arranged to generate addressing signals initiated from a predetermined value, said address signal generating means further including decoding means for selectively applying an offset to said addressing signals, depending upon whether a writing operation or a reading operation is being performed.

6,336,166	Memory control device with split read for ROM access	Apple Computer, Inc.	Kelly; James D.	711	G06F	19970407	1	92%	☐

Abstract: In a computer memory system, memory access operations are significantly enhanced by employing a data path between the read only memory (ROM) and the system processor that is separate and independent from the data path or paths between the system processor and the random access memory (i.e., RAM or DRAM). The separate ROM data path includes a full cache line buffer which stores the ROM data until the system data bus is available to transport the ROM data. With a separate ROM data path, that includes a full cache line buffer, memory access operations are more efficiently conducted because a RAM access (i.e., a read or write operation) and a ROM access (i.e., a read operation) can be executed concurrently.
MainClaim: A computer system comprising:

a processing unit;

a memory access control component connected to the processing unit by a system data bus;

a random access memory (RAM) connected to the memory access control component by at least one RAM data path; and

a read only memory (ROM) connected to the memory access control component by a ROM data path, wherein said ROM data path is separate from said RAM data path and comprises at least one cache line buffer for ROM;

wherein said computer system is configured to allow a ROM memory operation to be conducted simultaneously with a

transfer between the processing unit and the RAM.

6,631,394	Embedded system with interrupt handler for multiple operating systems	Nokia Mobile Phones Limited	Ronkka ; Risto | Saarinen; Vesa | Kantola; Janne | Leskela ; Jyrki | Lempinen; Kim | Purhonen; Anu	718	G06F	19990120	0	100%	☐

Abstract: An embedded system (1) comprising at least one processor (2) for running an operating system (OS_A, OS_B). The embedded system (1) further comprises: means (17, 401, 412) for running at least two operating systems (OS_A, OS_B) in said processor (2), a first operating system (OS_A) comprising a first group of threads (THA1, THA2, THA_IDLE), a second operating system (OS_B) comprising a second group of threads (THB1, THB2, THB_IDLE), means (nFIQ, nIRQ, SWI) for generating an interrupt (FIQ, IRQ, SWI) to said processor (2), means for examining (401, 603, 617) to the execution of which thread (THA1, THA2, THB1, THB2, THA_IDLE, THB_IDLE) the interrupt (FIQ, IRQ, SWI), that has come to the processor (2), affects, and means (401, 412, 603, 609, 617) for transmitting interrupt data to said operating system (OS_A, OS_B) which relates to the thread (THA1, THA2, THB1, THB2, THA_IDLE, THB_IDLE) affecting the interrupt (FIQ, IRQ, SWI) received by the processor (2).

MainClaim: An embedded system comprising:

at last one processor operable to run at least two operating systems, wherein the at least two operating systems include

a first operating system including a first group of threads, and

a second operating system including a second group of threads;

means for generating an interrupt to said processor;

means for selecting a thread from said first and second group of threads to execute as a result of said interrupt and as defined by any applications, said means for selecting including at least one at least partly common interrupt handler for said at least two operating systems; and

means for transmitting interrupt data to the operating system from which the thread was selected including said thread to execute.

6,951,019	Execution control for processor tasks	Apple Computer, Inc.	Anderson; Eric C. | Svendsen; Hugh B.	718	G06F	20010928	1	92%	☐

Abstract: Method and means for controlling the execution sequence of a first sequence of modules in a first task. The first sequence of modules are linked to one another and have at least one sequence of execution. The method stores in each of the first sequence of modules a skip value representing which of subsequent modules to execute. The method executes the first of the first sequence of said modules, and then executes the next of the modules indicated by the skip value. Conservation of processor bandwidth is accomplished by avoiding the loading of modules which will not be executed. Method and means are further provided for simultaneous activation/deactivation of a set of tasks by a processor, each of the tasks normally executed in a sequential fashion by one or more processors. A list of tasks to be activated/deactivated is stored, including the timing relationship for the activation process. The list is then implemented as frame numbers for activation and requested state in the actual task list. The executing processor compares the requested state to the actual state for each task, and if different, compares the value of the activation frame with the current frame. If the current frame equals or exceeds the activation frame, then the requested active state is transferred to the actual state.

MainClaim: A computer-readable medium having executable instructions to cause a processing unit to perform a method to control the activation of a sequence of tasks, each of the tasks normally executed in a sequential fashion by the processing unit, the method comprising:

a. determining a state of a simultaneous task semaphore;

b. if the simultaneous task semaphore is not set, executing a first task and terminating;

c. if the simultaneous task semaphore is set, determining if a client which references the first task has control of the simultaneous task semaphore, and if not, terminating;

d. if the simultaneous task semaphore is set and the client which references the first task has control of the simultaneous task semaphore, determining if a toggle active flag is set;

e. if the toggle active flag is set, toggling a first task execution flag and terminating;

f. if the toggle active flag is not set, determining whether the first task execution flag is set; and

g. if the first task execution flag is set, executing the first task, otherwise halting the first task.

	Low power, low interconnect	Nokia Mobile Phones							

5,890,005	complexity microprocessor and memory interface	Limited	Lindholm; Rune	713	H03K	19970602	0	100%	☐

Abstract: A method is disclosed for reducing the power consumption of an electronic system, such as a wireless or cellular telephone, that has a memory and a device for accessing the memory. The method includes the steps of (a) during a first part of a memory access cycle, applying an address over a bus; (b) during a second part of the memory access cycle, transferring data to or from the memory over at least a portion of the bus; and (c) prior to the step of transferring, selectively inverting or not inverting the data so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the memory access cycle. In a preferred embodiment of the invention the bus is a multiplexed address/data bus. The method also generates a control signal that is transmitted to the bus for informing a receiving device that the data (or address) being transferred over the multiplexed address/data bus should be inverted before use. Also disclosed is a memory that operates in a burst mode by incrementing or decrementing memory addresses using a clock signal, and that operates with the power saving circuitry to selectively invert or not invert burst mode data read from or written to the memory.

MainClaim: A method for reducing the power consumption of an electronic system having a first device and a second device that are coupled together through a bidirectional bus, comprising the steps of:

during a first part of a bus cycle, applying an address over the bus from the first device to the second device;

during a second part of the bus cycle, transferring data to or from the first device over at least a portion of the bidirectional bus; and

prior to the step of transferring, selectively inverting or not inverting the data, regardless of whether there is to be a chance in direction of data to be transferred over the bidirectional bus, so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the bus cycle, thereby reducing power consumption by at least reducing an amount of bus capacitance that is required to be charged or discharged in order to transfer the data during the second part of the bus cycle.

6,865,701	Method and apparatus for improved memory core testing	Apple Computer, Inc.	Youngs; Lynn R. | Iwamoto; Derek F.	714	G11C	20010329	1	92%	☐

Abstract: A memory unit is described that has a controller coupled to a memory core through an interface circuit. The interface circuit has a test data input that receives test data from the controller. The interface circuit also has a system data input that receives data from a system. The interface circuit has a data output that is coupled to a data input of the memory core.

MainClaim: A semiconductor chip, comprising:

a) a multi-ported memory having a plurality of data input ports;

b) a controller to execute test commands to test said multi-ported memory; and,

c) an interface circuit to interface said data input ports to both said controller and a system that uses said memory, said interface circuit comprising a group of three circuit paths for each one of said memory input ports, each circuit path of said group of three circuit paths to transport data to be written into said memory, each said group of three circuit paths comprising:

i) a first circuit path that flows from said system to a data input port that said first circuit path's group of three circuit paths are associated with, said first circuit path to transport data provided by said system;

ii) a second circuit path that flows from said controller to said data input port, said second circuit path to transport first test data provided by said controller;

iii) a third circuit path that flows from said controller to register circuitry and from said register circuitry to said data input port, a portion of said third circuit path that precedes said register circuitry to transport second test data provided by said controller, a portion of said third circuit path that follows said register circuitry to transport said second test data after it has already been transported into said memory by another group's second circuit path.

7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng | Aries; Wong | Lin; Ming-Hui	710	G06F	20010330	0	100%	☐

Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that

serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.

RE41,010	System for data transfer through an I/O device using a memory access controller which receives and stores indication of a data status signal	Apple, Inc.	Christiansen; Kevin M.	710	G06F	20030918	1	93%	☐

Abstract: A method and system for transferring units of data between a computer memory and an external system in which a DMA controller stores and uses information from an I/O device interfacing with the external system to transfer data more efficiently.
MainClaim: A method of transferring a data unit from a computer system memory and to an external system through an I/O device using a memory access controller, said memory access controller including a register for storing information which the memory access controller uses to control its own operation, said method comprising the steps of: a first step, executed by said memory access controller, of retrieving said data unit from said computer system memory and transmitting said data unit to said I/O device; a second step, executed by said I/O device, of transmitting said data unit retrieved and transmitted in said first step to said external system; a third step, executed by said I/O device, of sending a data status signal to said memory access controller when said second step is complete; and a fourth step, executed by said memory access controller, of storing an indication of said data status signal sent in said third step in said register.

5,912,570	Application specific integrated circuit (ASIC) having improved reset deactivation	Nokia Mobile Phones Limited	Kuusisto; Mika	327	H03L	19970108	0	100%	☐

Abstract: Disclosed is a circuit and method for initializing clocked digital logic and for generating at least one clock signal for the clocked digital logic. The circuit includes at least one flip-flop that is responsive to a stimulus signal becoming active for asserting and then deasserting a reset signal to the clocked digital logic. The at least one flip-flop is clocked with a free-running clock signal. The circuit further includes a gating circuit for generating the at least one clock signal from the free running clock signal, and an edge detector that has an input coupled to the at least one flip-flop and an output coupled to the gating circuit. The edge detector operates to cause the gating circuit to place the at least one clock signal into an inactive state at least one period of the free running clock prior to the reset signal being deasserted, and for holding the at least one clock signal in the inactive state for at least one period of the free running clock subsequent to the reset signal being deasserted. In this manner it is guaranteed that no clock edges are applied to the clocked digital logic (e.g., flip-flops) for a predetermined period of time prior to and after the deassertion of the reset signal. The period of the free running clock signal is predetermined to exceed the minimum setup and hold times for the flip-flops that comprise the clocked digital logic.
MainClaim: A method for initializing clocked digital logic, comprising the steps of:

in response to a stimulus signal becoming active,

asserting an initialization signal and applying the asserted initialization signal to the clocked digital logic;

during the time that the initialization signal is asserted,

placing one or more clock signals into an inactive state to prevent an occurrence of rising or falling clock edges at inputs of the clocked digital logic;

deasserting the initialization signal; and

placing the one or more clock signals into an active state so as to cause rising and falling clock edges at the inputs of the clocked digital logic.

6,654,898	Stable clock generation internal to a functional integrated circuit chip	Apple Computer, Inc.	Bailey; Robert L. | Howard; Brian D. | Culbert; Michael F.	713	G06F	20000508	1	93%	☐

Abstract: Methods and apparatus that provide stable clock generation within a functional integrated circuit are disclosed. The functional integrated circuit provides a function other than clock generation, such as a peripheral or interrupt control. Typically, the clock generation is phase-lock loop (PLL) based. The functional integrated circuit also

typically provides power savings modes to conserve power consumption.
MainClaim: An integrated circuit chip having internal functional circuitry, said integrated circuit chip receiving an external clock, a reset signal and a clock stop signal, said integrated circuit chip comprising:

a clock control circuit, said clock control circuit receives the reset signal and the clock stop signal and produces a clock control signal;

a phase lock loop circuit, said phase lock loop receives the external clock and produces a generated clock based on the external clock;

a multiplexer operatively connected to said phase lock loop circuit, said multiplexer receives the external clock and the generated clock, and said multiplexer outputs at an output terminal one of the external clock and the generated clock as a selected clock based on the clock control signal; and

a clock stopper operatively connected to the output terminal of said multiplexer, said clock stopper operates to permit or block passage of the selected clock to the internal functional circuitry of said integrated circuit chip.

7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha | Syrjänen; Jukka | Ruusiala; Jarmo | Kartesalo; Tomi | Ruohtula; Erkki | Malmqvist; Markus	707	G06F	20021120	0	100%	☐

Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.
MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:

generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,

allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and

assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.

2008/0250432	OBJECT-ORIENTED OPERATING SYSTEM	APPLE INC.	Orton; Debra Lyn | Bolton; Eugenie Lee | Chernikoff; Daniel F. | Goldsmith; David Brook | Moeller; Christopher P.	719	G06F	20080619	1	92%	☐

Abstract: An apparatus for enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface is disclosed. The apparatus includes a computer and a memory component in the computer. A code library is stored in the memory component. The code library includes computer program logic implementing an object-oriented class library. The object-oriented class library comprises related object-oriented classes for enabling the application to access in an object-oriented manner services provided by the operating system. The object-oriented classes include methods for accessing the operating system services using procedural function calls compatible with the native procedural interface of the operating system. The computer processes object-oriented statements contained in the application and defined by the class library by executing methods from the class library corresponding to the object-oriented statements.
MainClaim: A computer implemented method of enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface during run-time execution of the application in a computer having a memory component, the method comprising the steps of:locating in the application an object-oriented statement which accesses a service provided by the operating system: translating the object-oriented statement to a procedural function call compatible with the native procedural interface of the operating system and corresponding to the object-oriented statement; and executing in the computer the procedural function call to thereby cause the operating system to provide the service on behalf of the application.

2008/0250433	OBJECT-ORIENTED OPERATING SYSTEM	APPLE INC.	Orton; Debra Lyn | Bolton; Eugenie Lee | Chernikoff; Daniel F. | Goldsmith; David Brook | Moeller; Christopher P.	719	G06F	20080619	1	92%

Abstract: An apparatus for enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface is disclosed. The apparatus includes a computer and a memory component in the computer. A code library is stored in the memory component. The code library includes computer program logic implementing an object-oriented class library. The object-oriented class library comprises related object-oriented classes for enabling the application to access in an object-oriented manner services provided by the operating system. The object-oriented classes include methods for accessing the operating system services using procedural function calls compatible with the native procedural interface of the operating system. The computer processes object-oriented statements contained in the application and defined by the class library by executing methods from the class library corresponding to the object-oriented statements.

MainClaim: A computer implemented method of enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface during run-time execution of the application in a computer having a memory component, the method comprising the steps of:locating in the application an object-oriented statement which accesses a service provided by the operating system: translating the object-oriented statement to a procedural function call compatible with the native procedural interface of the operating system and corresponding to the object-oriented statement; and executing in the computer the procedural function call to thereby cause the operating system to provide the service on behalf of the application.

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila | Kiss; kos | Ferenc; Rudolf | Gyimothy; Tibor	717	G06F	20030829	0	100%

Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

2010/0042815	METHOD AND APPARATUS FOR EXECUTING PROGRAM CODE	APPLE INC.	Gonion; Jeffry E. | Diefendorff; Keith E.	712	G06F	20090407	1	93%

Abstract: The described embodiments provide a system that executes program code. While executing program code, the processor encounters at least one vector instruction and at least one vector-control instruction. The vector instruction includes a set of elements, wherein each element is used to perform an operation for a corresponding iteration of a loop in the program code. The vector-control instruction identifies elements in the vector instruction that may be operated on in parallel without causing an error due to a runtime data dependency between the iterations of the loop. The processor then executes the loop by repeatedly executing the vector-control instruction to identify a next group of elements that can be operated on in the vector instruction and selectively executing the vector instruction to perform the operation for the next group of elements in the vector instruction, until the operation has been performed for all elements of the vector instruction.

MainClaim: A method for executing program code in a processor that includes a mechanism for executing vector instructions, comprising:while executing program code, encountering at least one vector instruction for performing at least one operation in a loop in the program code, wherein each element in a set of elements in the vector instruction is used to perform the operation for a corresponding iteration of the loop, and at least one vector-control instruction that identifies elements in the vector instruction that may be operated on in parallel without causing an error due to a runtime data dependency between the iterations of the loop; andexecuting the loop by repeatedly:executing the vector-control instruction to identify a next group of elements that can be operated on in the vector instruction; andselectively executing the vector instruction to perform the operation for the next group of elements in the vector instruction,until the operation has been performed for all elements of the vector instruction.

2010/0042816	BREAK, PRE-BREAK, AND REMAINING INSTRUCTIONS FOR PROCESSING VECTORS	APPLE INC.	Gonion; Jeffry E. | Diefendorff; Keith E.	712	G06F	20090407	1	92%

Abstract: The described embodiments provide a system that sets elements in a result vector based on an input vector. During operation, the system determines a location of a key element within the input vector. Next, the system generates a result vector. When generating the result vector, the system sets one or more elements of the result vector based on the location of the key element in the input vector.

MainClaim: A method for setting elements in a result vector based on an input vector, comprising:receiving the input vector, wherein the input vector includes a set of N elements;determining a location of a key element in the input vector; andgenerating a result vector, wherein generating the result vector involves setting one or more elements of the result vector based on the location of the key element in the input vector.

2010/0049950	RUNNING-SUM INSTRUCTIONS FOR PROCESSING VECTORS	APPLE INC.	Gonion; Jeffry E. | Diefendorff; Keith E.	712	G06F	20090814	1	92%	☐

Abstract: The described embodiments provide a processor for generating a result vector with summed values from a first input vector. During operation, the processor receives the first input vector, a second input vector, and a control vector. When generating the result vector, the processor first captures a base value from a key element in the second input vector. The processor then writes the sum of the base value and values from relevant elements in the first input vector into selected elements in the result vector. In addition, a predicate vector can be used to control the values that are written to the result vector.

MainClaim: A method for generating a result vector with summed values from a first input vector, comprising:receiving the first input vector, a second input vector, and a control vector, and optionally receiving a predicate vector, wherein each vector includes N elements;recording a value from an element at a key element position in the second input vector into a base value; andgenerating the result vector, wherein generating the result vector involves, if the predicate vector is received, for each element in the result vector to the right of the key element position for which a corresponding element in the predicate vector contains a non-zero value, otherwise, for each element in the result vector to the right of the key element position,setting the element in the result vector equal to a sum of the base value and a value in each relevant element of the first input vector, from an element at the key element position to and including a predetermined element in the first input vector.

6,556,217	System and method for content adaptation and pagination based on terminal capabilities	Nokia Corporation	Makipaa ; Mikko | Madan; Hemant | Beletski; Oleg | Tanskanen; Erkki | Soderg.ang.rd; Caj | Aaltonen; Matti | Jarvinen; Timo | Kinnunen; Timo | Tammela; Antti | Vaatanen; Antti | Anttila; Akseli | Hameen-Anttila; Tapio | Vuorenoja; Juuso | Kopra; Toni	345	G09G	20000601	0	100%	☐

Abstract: A system, method and computer program for paginating information received from a content provider so that it may be displayed on any type of user terminal having any size screen and having different types of mechanisms for input of information. This system has a pagination and terminal adaptation module which will calculate the space needed by element to be displayed on a user terminal. The pagination and terminal adaptation module will then determine if sufficient space exits on the user terminal screen to display the element. When sufficient space does not exist on the user terminal screen then the pagination and terminal adaptation module will resize the element when possible in order to make it fit. The pagination and terminal adaptation module accesses a database of user terminal profile information to determine the characteristics of the user terminal as well as the screen size. This system further is able to transmit information in a continuous stream to the user terminal or as a single element that will only update a portion of the user terminal screen. Using this system a user is able to access web site pages regardless of the type of terminal being used and no matter how small the screen size is.

MainClaim: A method of information pagination in order to display the information on a user terminal screen, comprising:

identifying a user terminal type and screen size upon logon of a user terminal;

extracting layout rules and typographical settings from a database based on the user terminal type;

calculating the space required to display an element of a plurality of elements of a page of information on the user terminal screen;

determining if the space required to display the element is available on the user terminal screen;

resizing the element when the determination is made that there is not adequate space on the user terminal screen to display the element; and

displaying the element according to the layout rules and typographical settings on the user terminal screen.

2009/0044131	INTEGRATING MESSAGING ATTACHMENTS WITH ONLINE PUBLISHING SYSTEMS	APPLE INC.	Pylappan; Seejo | Lunati; Stephane	715	G06F	20070806	1	95%	☐

Abstract: A client publishes rich media content by receiving a message including a representation of imagery content. A publishing control is presented, in association with the message, that enables the user to transmit the imagery content to a publishing host. The user is enabled to interact with the publishing control and the representation of the imagery content to publish the imagery content using the publishing host.
MainClaim: A method of using a client to publish rich media content, the method comprising:receiving a message including a representation of imagery content;presenting, in association with the message, a publishing control that enables the user to transmit the imagery content to a publishing host; andenabling the user to interact with the publishing control and the representation of the imagery content to publish the imagery content using the publishing host.

7,685,134	Media file sharing, correlation of metadata related to shared media files and assembling shared media file collections	Nokia Corporation	Myka; Andreas | Lindholm; Christian	348	G06F	20031231	0	100%	☐

Abstract: The present invention provides for systems and methods for communicating media files and creating a collection of media files, also referred to herein as a master media file. In addition, the systems and methods of the present invention provide for the creation of automatic metadata and compilation of metadata associated with the collection of media files. The present invention is able to bond devices, referred to herein as slave devices, such as media capture devices, presence devices and/or sensor devices and instruct the slave devices, particularly the media capture devices, to communicate captured media files with a specified set of metadata included.
MainClaim: A method for wireless bonding of devices and communicating media file transfer parameters, the method comprising: monitoring, at a master device, an area of interest for the presence of potential bondable devices; receiving, at the master device, a presence signal from a potential bondable device; determining bond capability of the potential bondable device; approving the potential bondable device as a bonded device; and communicating, from the master device to the bonded device, media file transfer parameters, including definition of the media file metadata that is to be included with a captured media file.

2010/0011135	SYNCHRONIZATION OF REAL-TIME MEDIA PLAYBACK STATUS	Apple Inc.	Jawa; Amandeep | Cannistraro; Alan | Davis; Daniel	710	G06F	20080710	1	93%	☐

Abstract: In a system comprising a content performance device, multiple status display devices can communicate with the performance device to receive messages updating status of content being performed by the performance device, or being transmitted to one or more other performance devices. Content performance devices can include computers configured with software for managing media libraries, for obtaining Internet-based media, as well as more purpose-specific devices, such as digital video recorders, settop boxes, Apple TV, TiVo, and so on. Status display devices, remote controls or client devices can make standing requests to receive status updates as status changes. Status display devices also can function as remote controls for the performance device, and can submit control requests to it, which when effected, are acknowledged to all status display devices, which responsively update their displays. Each status display device can interpret content sent for communicating status updates, and can make changes to a respective display, or to other features or functions according to its programming. Status display devices can include personal information managers, smart phones, laptops, palm tops and other electronic devices capable of displaying playback status information received from the content performance device.
MainClaim: A remote updating a media content system, comprising:a content performance device operable for performing content accessible from the content performance device;a wireless network to which the performance device is operable to connect; anda status display device operable to interface with the wireless network, and initiate a request to the performance device, transmitted through the network, for status information concerning content currently being performed, and wherein the performance device is operable to respond with update messages upon status changes during content performance, the update messages conveying information describing one or more changes to content playback status.

2008/0188209	COMMUNICATING AND STORING INFORMATION ASSOCIATED WITH MEDIA BROADCASTS	Apple Inc.	Dorogusker; Jesse Lee | Schubert; Emily Clark | Novotney; Donald J. | Fadell; Anthony M. | Hailey; Michael Benjamin | Bell; Chris | Gedikian; Steve Saro | Borchers; Robert Edward | Laefer; Jay | Lydon; Gregory Thomas | Bolton; Lawrence G. | Oliver; Eric	455	H04M	20071220	1	93%	☐

Abstract: An accessory communicates with a portable media device ("PMD") to store tags associated with broadcasts in a file maintained in a storage medium of the accessory, where the tags contain information descriptive of a subset of the broadcast content. In one embodiment, the accessory sends commands to the PMD to create or open a tag file that resides on the PMD, write one or more tags to the file, and close the file. Stored tags can be used to access (e.g., purchase) tagged content by communicating with a media asset delivery service either via a host computer or directly from the PMD.
MainClaim: A method performed by an accessory communicably coupled to a portable media device ("PMD"), the

method comprising:receiving broadcast data including a first track;determining whether the first track is to be tagged; andin response to determining that the first track is to be tagged:generating a first tag comprising identifying information for the first track; andinstructing the PMD to store the first tag in a storage medium of the PMD.

2010/0131567	TAGGING MEDIA ASSETS, LOCATIONS, AND ADVERTISEMENTS	Apple Inc.	Dorogusker; Jesse Lee | Schubert; Emily Clark | Novotney; Donald J. | Bolton; Lawrence G. | Oliver; Eric	707	G06F	20100126	1	92%	☐

Abstract: An accessory communicates with a PMD to store tags associated with broadcasts in a file maintained in a storage medium of the accessory. In one embodiment, the accessory sends a command to the PMD to create or open a tag file that resides on the PMD. Once opened, the tag file is held open by the PMD until the accessory closes it (or disconnects), allowing multiple tags to be written to one file. Each time the user requests a new tag, the accessory generates a tag containing information descriptive of the broadcast material (e.g., song title, artist, radio station identifier, time of tagging, etc.) and writes the tag to the tag file using a write command to the PMD.
MainClaim: A method for tagging locations, the method comprising:receiving a broadcast indicative of a location;determining whether the location is to be tagged;based on the determination, generating a tag comprising identifying information for the location; andinstructing a portable media device to store the tag in a storage medium of the portable media device.

7,263,345	System and method for remote service information	Nokia Corporation	Kotola; Sakari | Savinen; Teppo	455	H04B	20040317	0	100%	☐

Abstract: Service links corresponding to services provided by remote service providers are received. These links may be from a short-range wireless communications network. A previously stored remote service link may be replaced with the received remote service link when a maximum number of stored service links is reached. Also, the received remote service link may replace an earlier stored service link when a identifier corresponding to the received remote service link is the same as an identifier corresponding to the earlier stored remote service link. Representations of remote service links may be displayed, for example, in the form of graphical icons.
MainClaim: A method, comprising: (a) receiving a remote service link across a short-range wireless communications network, the service link corresponding to a service provided by a remote service provider, wherein the received remote service link is included in a data structure comprising an identifier corresponding to the received remote service link; (b) said remote service link including a download time information and a download place information regarding the time and location at which said service is available; (c) storing the received remote service link; and (d) displaying a representation of the received remote service link, including the time and location at which said service is available.

2010/0120450	Location Specific Content	APPLE INC.	Herz; Scott	455	H04W	20081113	2	93%	☐

Abstract: Systems, methods, and computer program products communicate location information associated with a device, such as a mobile device, to a server. Content identified by the server is received at the device, from the server and/or from a content service. The content can include an application associated with the location information. The content received at the device is displayed on the device only while the device is at or near a particular location identified by the location information.
MainClaim: A method comprising:communicating location information associated with a device to a server;receiving at the device content identified by the server, the content comprising an application associated with the location information; andpresenting the received content on a display of the device only while the device is at or near a particular location identified by the location information.

2009/0325603	LOCATION SHARING	APPLE INC.	Van Os; Marcel MWA | Herz; Scott | Matas; Mike	455	H04Q	20080630	1	92%	☐

Abstract: Geographic location data is sent from a first device to a second device with a modified message to signal the presence of geographic location data associated with the message. The message can include (or attach) the geographic location data or file, or the message can include a link to a network-based resource which the second device can use to obtain the geographic location data. In some implementations, when a user of the first device views a location on a map display of the first device, a graphical user interface is presented to allow the user to select an option to share the geographic location with the second device. The second device receives geographic location data or a link from the first device which can trigger a map display on the second device showing the location of the first device and, optionally, the location of the second device.
MainClaim: A method comprising:obtaining input specifying sharing of geographic location data or a contact with a device; andsending the geographic location data or contact with a text message to the device, where the text message is modified to signal the presence of the geographic location data or contact associated with the text message.

2009/0005021	LOCATION-BASED CATEGORICAL INFORMATION SERVICES	Apple Inc.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E.	455	H04Q	20080527	2	92%	☐

Abstract: A selection of a category of interest and location information is used to determine categorical information that is provided to a device. In some implementations, the device includes a touch-sensitive display and presents the categorical information on a map using an indicator. In some implementations, the categorical information can be shared and/or updated by others.
MainClaim: A method comprising:receiving first information associated with a category of interest from a mobile device;receiving second information identifying a geographic location of the mobile device;determining categorical information using the first information and the second information;providing the categorical information to the mobile device including information used by the mobile device to represent the categorical information on a display associated

with the mobile device; andreceiving third information to share the categorical information with a second user.

6,985,754	Radio terminal for browsing the internet	Nokia Mobile Phones Limited	Pedersen; Claus | Hansen; Lars Bohn	455	G06F	20000425	0	100%	☐

Abstract: A system comprising at least one terminal and a server in radio communication therewith. The terminal comprises a transceiver, arranged to send radio packets to and receive radio packets from the server, and a browser application for displaying content, arranged to initiate a first application by accessing a first item associated with the first application using a first content identifier. The application is provided by the combination of the first item and further items each of which is accessible using an individual content identifier, and each of which comprises content or means for linking to content. The terminal further comprises a user interface connected to the browser having a display for displaying content and user input means. The server has a transceiver for sending and receiving radio packets from the terminal and a storage for storing content, accessible for transfer to the terminal.
MainClaim: A system comprising:

at least one terminal and a server in radio communication therewith, the at least one terminal including

a transceiver arranged to send radio packets to and receive radio packets from the server;

a browser application for displaying content, arranged to initiate a first application by accessing a first item associated with the first application using a first content identifier, the first application being provided by the combination of the first item and further items each of which is accessible using an individual content identifier, and each of which comprises content or means for linking to content; and

a user interface connected to the browser application having a display for displaying content and user input means;

the server having a transceiver for sending and receiving radio packets from the terminal

and a storage for storing content, accessible for transfer to the terminal, the stored content comprising the first item accessible using the first content identifier and the further items, each of which is accessible using individual content identifiers, and each of which comprises content or means for linking to content, the first item on transfer to the terminal including identifying means for identifying to the browser the content identifiers of the further items; and

link means for automatically providing a link from the first item to each of a plurality of further items, each link using an individual content identifier, and wherein activation of each link provides for access to the further items and thereby a functionality of the first application, wherein the server is arranged to asynchronously transfer the first item to the terminal.

2009/0228322	Processing Invitations And Accepting Configuration Information on a Device	APPLE INC.	van Os; Marcel MWA | Anzures; Freddy A.	705	G06Q	20080930	7	92%	☐

Abstract: Systems, methods, and computer program products display invites on a mobile device calendar. An invitation is received that identifies an event having a start time and a duration. The invitation is presented to a user of a mobile device, where the mobile device includes two or more calendars. The invitation is associated with at least one of the two or more calendars, and the event is displayed in at least one calendar associated with the invitation.
MainClaim: A method, comprising:receiving an invitation, the invitation identifying an event having a start time and a duration;presenting the invitation to a user of a mobile device, the mobile device including two or more calendars;associating the invitation with at least one of the two or more calendars; anddisplaying the event in the at least one calendar associated with the invitation.

7,089,031	Radio terminal with browser	Nokia Mobile Phones Limited	Pedersen; Claus | Hansen; Lars Bohn	455	H04B	20000310	0	100%	☐

Abstract: A terminal for providing an application using a browser. The terminal comprises a transceiver arranged to send radio packets to and receive radio packets from a server, and means for determining if the terminal and server are able to communicate. The terminal further comprises an outbox buffer, and a browser application for displaying content stored in the server. The browser application is arranged to initiate a first application by accessing a first item associated with the first application from the server using a first content identifier. The application being provided by the combination of the first item and further items each of which is accessible using an individual content identifier, and each of which comprises content, or means for linking to content. The browser further comprising means for creating content in association with an item and means for transferring messages comprising the created content to the server.
MainClaim: A terminal for providing an application using a browser, comprising: a transceiver arranged to send radio packets to and receive radio packets from a server; means for determining if the terminal and server are able to communicate; an outbox buffer; and a browser application for displaying content stored in the server, arranged to initiate a first application by accessing a first item associated with the first application from the server using a first content identifier, the application being provided by the combination of the first item and further items each of which is accessible using an individual content identifier, and each of which comprises content, or means for linking to content, the browser further comprising means for creating content in association with an item and means for transferring messages comprising the created content to the server, wherein if the terminal and server are able to communicate the browser sends the messages to the server and if the terminal and server are unable to communicate the browser temporarily stores the messages in the outbox until the terminal and server are able to communicate when the stored

messages are automatically sent to the server.

2009/0228322	Processing Invitations And Accepting Configuration Information on a Device	APPLE INC.	van Os; Marcel MWA | Anzures; Freddy A.	705	G06Q	20080930	7	93%	☐

Abstract: Systems, methods, and computer program products display invites on a mobile device calendar. An invitation is received that identifies an event having a start time and a duration. The invitation is presented to a user of a mobile device, where the mobile device includes two or more calendars. The invitation is associated with at least one of the two or more calendars, and the event is displayed in at least one calendar associated with the invitation.
MainClaim: A method, comprising:receiving an invitation, the invitation identifying an event having a start time and a duration;presenting the invitation to a user of a mobile device, the mobile device including two or more calendars;associating the invitation with at least one of the two or more calendars; anddisplaying the event in the at least one calendar associated with the invitation.

7,299,267	Radio terminal with browser	Nokia Mobile Phones Limited	Pedersen; Claus | Hansen; Lars Bohn	709	G06F	20000425	0	100%	☐

Abstract: A terminal for providing an application using a browser. The terminal comprises a transceiver, arranged to send radio packets to and receive radio packets from a server, and a browser application for displaying content stored in the server. The browser application is arranged to initiate a first application by transferring a first item associated with the first application from the server using a first content identifier. The application being provided by the combination of the first item and further items each of which is transferable from the server using an individual content identifier, and each of which comprises content, or means for linking to content. The browser further comprising means for creating content in association with an item, and means for transferring the created content to the server to update the items stored there for transfer to the terminal.
MainClaim: A terminal comprising: a transceiver arranged to send radio packets to and receive radio packets from a server; and a browser application for displaying content stored in the server and arranged to transfer an item comprising content or a link to content from the server using a content identifier, wherein the browser application emulates a first application, based on the server via initiation of the first application by transferring a first item associated with the first application from the server using a first content identifier, the first application being a different application to the browser application and being provided by the combination of the first item and further items wherein each of the further items is transferable from the server using a corresponding individual content identifier, the browser application further comprising means for creating created content in association with the first item or at least one of the further items and in that the terminal comprises means for transferring the created content to the server to update the first item or the further items stored at the server for providing the first application by transfer of the first item to the terminal.

2009/0228322	Processing Invitations And Accepting Configuration Information on a Device	APPLE INC.	van Os; Marcel MWA | Anzures; Freddy A.	705	G06Q	20080930	7	92%	☐

Abstract: Systems, methods, and computer program products display invites on a mobile device calendar. An invitation is received that identifies an event having a start time and a duration. The invitation is presented to a user of a mobile device, where the mobile device includes two or more calendars. The invitation is associated with at least one of the two or more calendars, and the event is displayed in at least one calendar associated with the invitation.
MainClaim: A method, comprising:receiving an invitation, the invitation identifying an event having a start time and a duration;presenting the invitation to a user of a mobile device, the mobile device including two or more calendars;associating the invitation with at least one of the two or more calendars; anddisplaying the event in the at least one calendar associated with the invitation.

7,412,224	Portable local server with context sensing	Nokia Corporation	Kotola; Sakari | Savinen; Teppo	455	H04B	20051114	0	100%	☐

Abstract: A system for distributing information via short-range wireless communication. A mobile server receives information from an information provider for distribution to encountered devices. The information received from the service provider may contain both content to be distributed and context information that controls how the content is distributed. The mobile server may sense current environmental conditions, which are compared to distribution rules created from the context information to control how content information is distributed. The present invention is suitable for many applications, including the distribution of podcast-related information.
MainClaim: A method, comprising: receiving information into a portable distribution device, the information including at least content information for distribution to encountered devices; creating distribution rules in the portable distribution device based upon the received information, the distribution rules including parameters controlling at least one of when to permit distribution, where to permit distribution, to whom to permit distribution and what portion of the received information to distribute; sensing environmental conditions pertaining to the portable distribution device; determining a portion of the received information that is permitted for distribution from the portable distribution device based on the distribution rules and the environmental conditions; and distributing the portion of the received information that is permitted for distribution from the portable distribution device via short-range wireless communication.

2008/0113614	Personal media devices with wireless communication	Apple Computer, Inc.	Rosenblatt; Michael	455	H04H	20061113	1	95%	☐

Abstract: Systems and methods are provided for personal media devices having the ability to communicate wirelessly, and in particular, communicate wirelessly using a short-range communications protocol (e.g., Wi-Fi and Bluetooth).

Such communication provides users of personal media devices with access to several Wi-Fi oriented applications. For example, in one embodiment a personal media device may wirelessly download subscription assets (e.g., podcast) as they become available. In another embodiment, content specific or local to a merchant may be provided to personal media devices that are in wireless communication with a wireless router affiliated with the merchant. For example, if the merchant is a restaurant, the merchant may provide a menu to the personal media device and the user may place an order on his or her media device by selecting items on the menu.
MainClaim: A method for wirelessly downloading assets of a subscribed group of assets, the method comprising:receiving an indication of interest in a subscription to a group of assets;determining whether a new asset is available in the subscription of interest;determining whether to download the new asset; andin response to determining that the new asset is to be downloaded, downloading the asset to a personal media device.

2007/0155307	Media data transfer	Apple Computer, Inc.	Ng; Stanley C. | Hodge; Andrew Bert | Fadell; Anthony M. | Robbin; Jeffrey L. | Borchers; Robert Edward | Bell; Chris | Cue; Eddy	455	H04H	20060901	3	94%	☐

Abstract: Methods and systems that facilitate data delivery to electronic devices are disclosed. One aspect pertains to data delivery to mobile devices. In one embodiment, a local server is provided at a particular location, such as at an establishment, venue, etc. The local server can operate to locally wirelessly transmit data to mobile devices within its vicinity. Typically, the mobile devices are associated with persons (users) at the particular location. The mobile devices, or their users, can control, request or influence the particular data content being delivered. The local server can also provide customized data to the mobile devices, individually or as a group. The customization can be based on location, characteristics, interests, preferences and/or requests of the users of the mobile devices.
MainClaim: A method for delivery of data from a local server to at least one portable electronic device that can couple to a local wireless network while in the vicinity of an establishment, the method comprising:discovering the at least one portable electronic device in the vicinity of the establishment;informing the at least one portable electronic device of at least one available broadcast at the establishment;receiving a selection of the at least one available broadcast available from the local server at the establishment; andtransmitting the selected at least one available broadcast from the local server to the at least one portable electronic device.

2007/0161402	Media data exchange, transfer or delivery for portable electronic devices	Apple Computer, Inc.	Ng.; Stanley C. | Hodge; Andrew Bert | Fadell; Anthony M. | Robbin; Jeffrey L. | Borchers; Robert Edward | Bell; Chris | Cue; Eddy	455	H04M	20060901	3	94%	☐

Abstract: Methods and systems that facilitate data delivery to electronic devices are disclosed. One aspect pertains to data delivery to electronic devices that are portable, such as, mobile devices. In one embodiment, one mobile device discovers another mobile device within its vicinity. The mobile devices can then wirelessly transmit data from one mobile device to the other. The mobile devices, or their users, can control, request or influence the particular data content being delivered.
MainClaim: A method for delivery of data to a portable electronic device from another electronic device, the method comprising:discovering the another electronic device via a wireless network;requesting data from the another electronic device over the wireless network; andreceiving from the another electronic device a wireless transmission of at least a portion of the data requested via the wireless network.

7,543,233	Device dream application for a mobile terminal	Nokia Corporation	Reponen; Erika | Mattila; Jouka	715	G06F	20050601	0	100%	☐

Abstract: The invention provides a method, computer program product and device for generating a dream-like multimedia presentation, which can be displayed on a mobile terminal, or other digital device, based at least in part on contextual information relating to the mobile terminal and the mobile terminal user. The presentation provides the user with a snapshot of information that appears to be more important to the user at a given period of time, as well as information that may have been forgotten by the user over time, and does so in a manner that is somehow reflective of the user's presumed mood.
MainClaim: A method comprising: capturing a heterogeneous plurality of context data elements comprising three or more emails, messages, voicemails, image files or video files, or a combination thereof, generated or received by an electronic device, wherein respective context data elements have a time at which said context data element was generated or received; receiving an indication of a desired temporal scope of a presentation to be generated based at least in part on said plurality of context data elements, said temporal scope defining a time period to be represented by said presentation; identifying a subset of said plurality of context data elements, said subset comprising two or more context data elements generated or received at a time within said time period defined by said desired temporal scope, said subset comprising less than said plurality of context data elements; determining a relative importance of respective context data elements from among said subset of said plurality of context data elements based upon one or more of a number of instances that respective context data elements have been utilized, a level of significance associated with respective context data elements, and a period of time associated with respective context data elements; selecting a combination of two or more context data elements from said subset of said plurality of context data elements, wherein at least a portion of said combination is selected based on said relative importance of said respective context data elements; selecting a mood associated with a user from a plurality of predefined moods based at least in part on an analysis of one or more of said plurality of context data elements captured; selecting one or more media elements from a plurality of media elements each of said plurality of media elements belonging to one or more of a plurality of categories of media elements each category corresponding to a predefined mood, wherein the media elements comprise

audio elements, graphical elements, or a combination thereof, wherein the audio elements are categorized based at least in part on one or more of volume, tone, tempo, and musical genre, and the graphical elements are categorized based at least in part on one or more of color, tone, and brightness, and wherein at least one of said one or more media elements is selected from the category of media elements corresponding to said mood associated with said user; and generating said presentation, wherein said presentation comprises said combination of two or more context data elements, and wherein generating said presentation comprises compiling said combination of two or more context data elements with said one or more media elements.

2009/0170532	Event-based modes for electronic devices	Apple Inc.	Lee; Michael M. | Gregg; Justin | Dougherty; Casey Maureen	455	H04Q	20071228	1	95%	☐

Abstract: Event-based modes of operation are supported on an electronic device. One or more event-based modes of operation may be automatically or selectively applied to the device when a new life event is detected. The device's previous mode of operation may be backed up to the device or a network location and restored after the event-based mode of operation is no longer applied. The event-based modes of operation may be used to restrict access to certain applications or functionalities on the device, enforce or restrict certain user interface or other types of settings, and add or remove or rearrange the priority of device assets. The new life events associated with event-based modes of operation may be of various types, including location-based events, environment-based events, calendar-based events, news-based events, and usage-based events.
MainClaim: A method for supporting location-based modes of operation on an electronic device, the method comprising:accessing location information associated with the electronic device;determining, based at least in part on the accessed location information, if the electronic device is located within at least one location-based zone; andin response to determining that the electronic device is located within the at least one location-based zone, applying at least one location-based mode of operation to the electronic device.

2009/0005071	Event Triggered Content Presentation	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Chaudhri; Imran A.	455	H04Q	20080324	2	93%	☐

Abstract: Methods, computer program products, systems and data structures for generating property instructions are described. Associated with the property instructions may include a property table. The property table may identify the detection of a particular geographic location as a trigger event, and the display of an attribute (or attributes) of a display property as an action. When a mobile device comes within a defined range of a geographic area as defined in the property table, the attribute of the display property is displayed on the mobile device.
MainClaim: A method comprising:receiving location information associated with a device;identifying an attribute of a display property corresponding to a geographic location associated with the received location information; andpresenting the attribute on the device.

7,574,480	Radio terminal	Nokia Corporation	Pedersen; Claus | Hansen; Lars Bohn	709	G06F	20000426	0	100%	☐

Abstract: A terminal for providing an application using a browser. The terminal includes a transceiver arranged to send radio packets to and receive radio packets from a server, and a browser application for displaying content, arranged to initiate a first application by accessing a first item associated with the first application using a first content identifier. The application is provided by the combination of the first item and further items each of which is accessible using an individual content identifier, and each of which includes content or a device for linking to content. Also, the terminal includes a memory for storing items received from the server locally in the terminal for access by the browser using their individual content identifiers. Accessing an item involves attempting to read the item from the memory and then, if unsuccessful, requesting transfer of the item from the server by sending a radio packet containing the appropriate content identifier.
MainClaim: A terminal for providing an application, using a browser, comprising: a transceiver arranged to send radio packets to and receive radio packets from a server; a browser application for displaying content, the browser application being arranged to initiate a first application by accessing a first item associated with the first application using a first content identifier, the first application being provided by the combination of the first item and further items each of which is accessible using an individual content identifier, and each of which comprises content or a link to content; and a memory operable to store items locally in the terminal for access by the browser application using their individual content identifiers, wherein: accessing an item by the browser application involves attempting to read the item from the memory and then, if unsuccessful, requesting transfer of the item from the server by sending a radio packet containing the appropriate content identifier; and an arbitrator arranged to receive items from the transceiver and to determine whether a received item: is in response to a request from the browser application, and on a positive determination to direct the received item to the browser application, or is not in response to a request from the browser application but instead is pushed from the server, and on a positive determination to direct the received item to the memory for access by the browser application.

2009/0228322	Processing Invitations And Accepting Configuration Information on a Device	APPLE INC.	van Os; Marcel MWA | Anzures; Freddy A.	705	G06Q	20080930	7	92%	☐

Abstract: Systems, methods, and computer program products display invites on a mobile device calendar. An invitation is received that identifies an event having a start time and a duration. The invitation is presented to a user of a mobile device, where the mobile device includes two or more calendars. The invitation is associated with at least one of the two or more calendars, and the event is displayed in at least one calendar associated with the invitation.

MainClaim: A method, comprising:receiving an invitation, the invitation identifying an event having a start time and a duration;presenting the invitation to a user of a mobile device, the mobile device including two or more calendars;associating the invitation with at least one of the two or more calendars; anddisplaying the event in the at least one calendar associated with the invitation.

7,570,943	System and method for providing context sensitive recommendations to digital services	Nokia Corporation	Sorvari; Antti | Kahari; Markus | Toivonen; Hannu | Mannila; Heikki | Salmenkaita; Jukka-Pekka	455	H04M	20020829	0	100%	☐

Abstract: A system and method is disclosed to provide recommendations to a wireless device, based on stored bookmark/short-cut data. When a wireless device accesses services, data pertaining to the service access, along with any context related information is transmitted within the wireless device, or to a remote server. The data is processed in conjunction with bookmarks/short-cuts specified within the device, and are organized and presented to the wireless device in accordance with preference instructions specified within the wireless device.
MainClaim: A method comprising: obtaining network activity data comprising services previously accessed by a user, including context information describing sensed environment of a wireless device based on sensor data from a plurality of sensors, and short-cut data describing at least one bookmark for said wireless device, along with at least one preference instruction for describing services accessed by the user and related to the user's usage of the services; processing the network activity data in accordance with the at least one preference instruction; and generating in a recommendation engine in the wireless device, in accordance with the at least one preference instruction, at least one recommended service from a plurality of services available, wherein each of the at least one recommended service having at least one short-cut associated therewith.

2009/0228322	Processing Invitations And Accepting Configuration Information on a Device	APPLE INC.	van Os; Marcel MWA | Anzures; Freddy A.	705	G06Q	20080930	7	92%	☐

Abstract: Systems, methods, and computer program products display invites on a mobile device calendar. An invitation is received that identifies an event having a start time and a duration. The invitation is presented to a user of a mobile device, where the mobile device includes two or more calendars. The invitation is associated with at least one of the two or more calendars, and the event is displayed in at least one calendar associated with the invitation.
MainClaim: A method, comprising:receiving an invitation, the invitation identifying an event having a start time and a duration;presenting the invitation to a user of a mobile device, the mobile device including two or more calendars;associating the invitation with at least one of the two or more calendars; anddisplaying the event in the at least one calendar associated with the invitation.

7,472,135	Method and system for recalling details regarding past events	Nokia Corporation	Huuskonen; Pertti	707	G06F	20021018	0	100%	☐

Abstract: Techniques for recalling details regarding past events include identifying information from encountered remote devices, and storing the received identifying information in a proximity log database. An entry (e.g., a phonebook or calendar entry) stored by a personal information management application is accessed, and a query is generated from parameters provided by a personal information management application. Based on this query, the method searches the proximity log database; and receives a result from the proximity log database as a response to the query. The result identifies a past remote device encounter. Heuristics may be employed to infer data from the result.
MainClaim: A wireless communications device for retrieving information related to past events, comprising: a processor; an encounter management module including a heuristic engine configured to receive in communication sessions from encountered remote devices identifying information of the encountered remote devices and infer data related to past events from the information; a proximity log database configured to receive and store automatically entries of the identifying information of prior communication sessions received by the encounter management module for past encountered events between the wireless communication device and the encountered remote device, wherein said heuristics engine is configured to (1) search records in said proximity log database that correspond to events occurring within a predetermined time interval of the past remote device encounter identified by the result, (2) interact with a calendar application configured to determine a topical context for the past remote device encounters identified by the result, and (3) infer data from entries of past events in the proximity log data base using deductive reasoning and identifies patterns, relationships, and/or interdependencies between entries in the proximity log database; a personal information management application configured to provide one or more parameters for a query that is related to a past event of encountering devices; and a recall module configured to search said proximity log database of events according to the query, and to receive a result from said proximity log database as a response to the query, wherein the result identifies information in the form of details associated with a past remote device encounter event refined by the inferences made by the heuristics engine.

7,710,290	System and method for situational location relevant invocable speed reference	Apple Inc.	Johnson; William J.	340	G08B	20070622	1	92%	☐

Abstract: Situational location dependent information is transmitted from a server data processing system to a receiving data processing system. The server data processing system communicates with the receiving data processing system in a manner by pushing content when appropriate. A candidate delivery event associated with a current positional attribute of the receiving data processing system is recognized and a situational location of the remote data processing system is determined. The candidate delivery event may be a location and/or direction change, device state change, or movement

exceeding a movement tolerance. The situational location of the remote data processing system may be its location, direction, location and direction, proximity to a location, state change, or location and/or direction relative to a previous location and/or direction, or combinations thereof. A set of delivery content from a deliverable content database is transmitted from the server data processing system to the receiving data processing system according to the situational location of the receiving data processing system, and according to delivery constraints. The delivery content is configurable by authorized administrators on an instant activation basis for proactive delivery.
MainClaim: A speed reference invocation method in a data processing system, said method comprising: receiving an invocable speed reference according to a situational location of a user of said data processing system; presenting information for said invocable speed reference to said user; and automatically invoking said speed reference upon selection for invocation by said user, wherein said invocable speed reference is a phone number and wherein said step of automatically invoking said speed reference upon selection for invocation by said user includes automatically making a call with said phone number upon selection for invocation by said user.

7,454,461	Data processing information feeder framework	Nokia Corporation	Punaganti Venkata; Murali Krishna | Chaudhuri; Indrajit	709	G06F	20040818	0	100%	☐

Abstract: A framework is configured for publishing data from a data processing arrangement coupled to a network. Data objects are provided from one or more application programs of the data processing arrangement. An information feed of the data processing arrangement is defined. The information feed provides a collection of data objects having related information-types. The data objects of the application programs are associated with the information feed based on an information-type of the data objects. The data objects of the information feed available are made available via a network component of the data processing arrangement.
MainClaim: A method comprising: providing, to an information feeder application program interface (API) of a personal communications device, data objects from at least one user-accessible application program of the personal communications device that assist in creating publishable content; defining an information feed of the personal communications device, the information feed providing a collection of data objects having related information-types; associating the data objects of the at least one program with the information feed based on the information-type of the data objects; and receiving, via the information feeder API, the data objects of the information feed at a network component of the personal communications device, wherein the network component makes the information feed available to peers via a network.

2010/0088387	Email Notification Proxy	APPLE INC.	Calamera; Pablo M.	709	G06F	20081003	3	93%	☐

Abstract: Among other things, techniques and systems are disclosed for exchanging notifications and data between a client device and a server. A system includes a server configured to maintain a first persistent connection to a mobile electronic device. The first persistent connection is configured to push at least service specific data to the mobile electronic device. The server is further configured to maintain a second persistent connection to a third party server. The second persistent connection is configured to monitor for availability, at the third party server, of new data associated with the mobile electronic device. The server is also configured to notify the mobile electronic device via the first persistent connection when new data becomes available at the third party server.
MainClaim: A system comprising:a server configured to:maintain a first persistent connection to a mobile electronic device, wherein the first persistent connection is configured to push at least service specific data to the mobile electronic device;maintain a second persistent connection to a third party server, wherein the second persistent connection is configured to monitor for availability, at the third party server, of new data associated with the mobile electronic device; andnotify the mobile electronic device via the first persistent connection when new data associated with the mobile electronic device becomes available at the third party server.

2009/0005080	Location-Aware Mobile Device	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Chaudhri; Imran A. | Mahowald; Peter Henry	455	H04Q	20080627	2	92%	☐

Abstract: One or more location-based clients can be activated on a mobile device for providing location-based services. The location-based clients can be provided with information (e.g., presets, defaults) related to the current location and/or mode of the mobile device. The information can be obtained from one or more network resources. In some implementations, a number of location-based clients can run concurrently on the mobile device and share information.
MainClaim: A method comprising:activating a first location-based client on a mobile device;determining a location of the mobile device;determining a mode associated with the device;transmitting the location and mode to a network resource;receiving information related to the location and mode from the network resource; andproviding the information to the first location-based client.

2009/0064038	Configuration of Device Settings	APPLE INC.	Fleischman; David | Coffman; Patrick | Christie; Gregory N. | Marcos; Paul | Cassidy; Brian | Paine; Mallory Jackson | Lamiraux; Henri	715	G06F	20070904	3	92%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for configuring a device. A device is coupled to a data source. One or more parameters associated with the data source are determined. The one or more parameters are applied to the device. Properties of the data source are inherited by the device without requiring a user

to specifically input or identify the parameters for the device.
MainClaim: A method comprising:coupling a device to an agent;receiving at the device one or more parameters, wherein the one or more parameters are determined by the agent from one or more signals; andconfiguring a user interface of the device based on the received parameters.

6,907,225	Selective media capture via a communication device	Nokia, Inc.	Wilkinson; Jeffrey Miles	455	H04B	20011019	0	100%	☐

Abstract: Methods and systems for selectively capturing content and delivering the captured content to mobile communications devices via wireless communications are disclosed. In some embodiments, a mobile unit sends a request for content to a nearby content server, to which the content server may respond with a list of available content items. The mobile unit may send a second, refined request for a specific content item. The content server may send the requested content item to the mobile unit, or the content server may send a pointer to the mobile unit, which indicates a network location from which a user may later retrieve the actual content item. In another embodiment, a mobile unit sends a request to a content server for presently displayed content. The content server may capture a screen image and send the captured image to the mobile unit. Alternatively, the content server may send the file in a native file format of the file from which the displayed content was generated.
MainClaim: A content distribution method, comprising steps of:

(i) a content server wirelessly receiving a request for content from a mobile unit via a transceiver of the content server, wherein the mobile unit is located within a short-range wireless operational area served by the transceiver of the content server;

(ii) the content server identifying data corresponding to a video display image displayed at a time when the request is received; and

(iii) the content server sending a response to the mobile unit via the transceiver, wherein the response comprises a data file corresponding to the identified data, wherein step (ii) is performed by capturing a screen image of the displayed video image, and wherein the data file comprises the captured screen image.

2009/0276439	System and method for simplified data transfer	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mikhak; Amir M. | Nakajima; Taido L. | Mayo; Sean Anthony | Hodge; Andrew | Fadell; Anthony M. | Lee; Jeffery Theodore | Ellis; Shawn A. | Wood; Policarpo | Cannistraro; Alan Christopher	707	G06F	20080930	2	94%	☐

Abstract: Systems and methods of performing a simplified data transfer are provided. For example, a method of simplified data transfer may involve downloading an index of files accessed or modified on a home computer onto a handheld device from an online data storage server, displaying on the handheld device a user selectable list of files based on the index of files, issuing a request for a file selected by a user from the list of files from the handheld device to the data storage server, and receiving the file selected by the user onto the handheld device from the data storage server.
MainClaim: A method comprising:downloading an index of files accessed or modified on a second electronic device onto a first electronic device from the second electronic device or from a data storage server on a network;displaying on the first electronic device a user selectable list of files based on the index of files;issuing a request for a file selected by a user from the list of files from the first electronic device to the second electronic device or to the data storage server; andreceiving the file selected by the user onto the first electronic device from the second electronic device or from the data storage server.

2010/0082567	System and method for placeshifting media playback	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Hodge; Andrew | Fadell; Anthony Michael | Lee; Jeffrey Theodore | Ellis; Shawn A. | Wood; Policarpo | Cannistraro; Alan Christopher	707	G06F	20080930	2	94%	☐

Abstract: Systems and methods of placeshifting media playback between two or more devices are provided. For example, a method for placeshifting media may include downloading onto a first device an index of files accessed or

modified on a second device via a data storage server, at least one of the files being a media file played on the second device. The first device may display a user selectable list of the files on the first device before issuing a request for the media file to the data storage server. The data storage server may send the media file to the first device from the data storage server, and the first device may play back the media file where the second device left off.
MainClaim: A method comprising:downloading an index of files accessed or modified on a second electronic device onto a first electronic device from a data storage server on a network when an application is launched on the first electronic device,wherein at least one file of the index of files comprises a media file played on the second electronic device;displaying on the first electronic device a user selectable list of files based on the index of files;issuing a request for the media file from the first electronic device to the data storage server when the media file is selected by a user from the list of files; andreceiving the media file onto the first electronic device from the data storage server.

2009/0276547	System and method for simplified data transfer	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Hodge; Andrew | Fadell; Anthony Michael	710	G06F	20080930	2	94%	☐

Abstract: Systems and methods of performing a simplified data transfer are provided. For example, a simplified data transfer system may include two or more devices configured to perform a simplified data transfer. The first device may be configured to save and transfer data associated with applications open on the first device. When the second device initiates communication, the first device may automatically send the open application data to the second device.
MainClaim: A method comprising:establishing communication with a device, wherein the device includes data associated with at least one open application running on the device;exchanging device information via the established communication, wherein the device information includes a list of the data associated with the at least one open application;displaying the list of the data associated with the at least one open application in a user selectable format on a user interface;receiving a selection by a user of at least part of the list of the data associated with the at least one open application;communicating a request to the device via the established communication to transfer at least part of the data associated with the at least one open application, wherein the request is based on the selection by the user; andreceiving the requested data from the device via the established communication.

7,466,987	User interface for a radiotelephone	Nokia Mobile Phones Limited	Kinnunen; Timo | Salomaki; Lauri | Liukkonen-Olmiala; Tea | Hynninen; Tiina | Pirkola; Jani | Sippola; Leena | Lustila; Risto | Kaartinen; Sanna	455	H04Q	20001222	0	100%	☐

Abstract: A user interface for a radiotelephone 1 is described in which the user is able to select components from a variety of sources including multimedia sources and the Internet. The user is then able to combine the components in a message and furthermore edit them to add expression to the message and to set delivery conditions for the message. The message may be archived for later use or immediately sent to a third party either separately or as an attachment to another file.
MainClaim: A messaging user interface of a communication device of a message sender, the interface being configured for: selecting a component for inclusion in a message, selecting location conditions under which the message is enabled to be opened by a device of a recipient, the location conditions defining a location of the device of the recipient of the message, wherein the recipient and the message sender are different entities, and storing said component as a portion of the message together with a message header holding the location conditions under which the message is enabled to be opened by the device of the recipient in a memory of the communication device, the message header further including information descriptive of content of the message and information displayable to the recipient indicating requirements to read the message.

2009/0177617	Systems, methods and apparatus for providing unread message alerts	Apple Inc.	Lee; Michael M.	707	G06F	20080103	3	93%	☐

Abstract: The present invention includes systems, apparatus and methods for providing message alerts to a user prior to that user communicating with a second party. The user may desire to communicate with a second party by sending a text-based message or by speaking to them through a communications device, such as a cellular phone. Prior to sending the message or speaking with the second party, the device can provide the user with message alerts, the option to review alert content, and/or to view the alert content itself. The message alerts and alert content can be notifications and/or previews of opened/unopened e-mail messages, voicemail messages, text messages, etc. Alert content can be located based on, for example, contact information of the person with whom the user desires to communicate, subject line data of a text-based message, main body data of a text based message, etc.
MainClaim: A method of providing a message alert to a user prior to the user communicating with a second party, comprising:receiving a request to facilitate communications with the second party;locating at least one keyterm based on the request;searching for alert content associated with the at least one keyterm; andproviding the message alert to the user if alert content is found.

2009/0143007	Methods and systems for mixing media with	Apple Inc.	Terlizzi; Jeffrey J.	455	H04H	20071130	1	92%	☐

	communications								

Abstract: A communications device may transmit a media item chosen by a user over a communication path also being used to transmit an established communications operation. The user may select a media item of any known type, including for example a musical selection, a video, a voicemail, a podcast, an image, or any other suitable media item. The user may select any suitable contact method for the communications operation, including for example, telephone, voicemail, email, text message, chatting, fax, or any other suitable method.
MainClaim: A method for transmitting media using a communications device, comprising:establishing a communication path with a second communications device;performing an ongoing communications operation with the second communications device;identifying media available for playback by the communications device;combining the identified media with the ongoing communications operation; andtransmitting the combination of the identified media and the ongoing communications operation to the second communications device.

2009/0170480	Systems and methods for intelligent and customizable communications between devices	Apple Inc.	Lee; Michael M.	455	H04M	20071228	3	92%	☐

Abstract: Systems and methods for providing a communications system are provided. The communications system can provide intelligent communications between devices, in which the system can identify appropriate communication modes for incoming communications requests based on a user's preferences and availability. The communications system can determine whether a user is participating in an activity. In response to determining that a user is participating in an activity, the communications system can automatically identify one or more preferred communication modes that are available to the user. In some embodiments of the present invention, the communications system can configure a communications device to send a message back to a contact's device if the communication mode of an incoming communications request is not preferred. The communications system can also allow a user to customize information that is displayed to a subset of the user's contacts.
MainClaim: A method of providing communication modes of a user comprising:identifying an activity in which the user is participating based on one or more categories of data;identifying one or more preferred communication modes for the user based on the activity;establishing a communications channel with a contact's device; andnotifying the contact's device of at least one preferred communication mode via the communications channel.

7,103,315	Selective media capture via a communication device	Nokia, Inc.	Wilkinson; Jeffrey Miles	455	H04B	20040927	0	100%	☐

Abstract: Methods and systems for selectively capturing content and delivering the captured content to mobile communications devices via wireless communications are disclosed. In some embodiments, a mobile unit sends a request for content to a nearby content server, to which the content server may respond with a list of available content items. The mobile unit may send a second, refined request for a specific content item. The content server may send the requested content item to the mobile unit, or the content server may send a pointer to the mobile unit, which indicates a network location from which a user may later retrieve the actual content item. In another embodiment, a mobile unit sends a request to a content server for presently displayed content. The content server may capture a screen image and send the captured image to the mobile unit. Alternatively, the content server may send the file in a native file format of the file from which the displayed content was generated.
MainClaim: A content distribution method, comprising steps of: (i) a content server establishing a direct wireless connection with a mobile unit, and receiving a first request for available content items from the mobile unit over a wireless medium, wherein the mobile unit is located within a short-range wireless operational area served by a transceiver of the content server; (ii) the content server transmitting a first response to the mobile unit via the transceiver, wherein the first response comprises information associated with available content items; (iii) the content server receiving a second request for a specific content item from the mobile unit via the transceiver; and (iv) transmitting a second response from the content server to the mobile unit via the transceiver, wherein the second response comprises accessibility data corresponding to the specific content item, wherein the mobile unit accesses the content item using said accessibility data, wherein a first specific content item is available according to a first set of predetermined conditions and a second specific content item is available according to a second set of predetermined conditions, and wherein the first set of predetermined conditions comprises a password-based condition, said password associated with said first specific content item.

2009/0276439	System and method for simplified data transfer	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mikhak; Amir M. | Nakajima; Taido L. | Mayo; Sean Anthony | Hodge; Andrew | Fadell; Anthony M. | Lee; Jeffery Theodore | Ellis; Shawn A. | Wood; Policarpo | Cannistraro; Alan Christopher	707	G06F	20080930	2	94%	☐

Abstract: Systems and methods of performing a simplified data transfer are provided. For example, a method of simplified data transfer may involve downloading an index of files accessed or modified on a home computer onto a handheld device from an online data storage server, displaying on the handheld device a user selectable list of files based on the index of files, issuing a request for a file selected by a user from the list of files from the handheld device

to the data storage server, and receiving the file selected by the user onto the handheld device from the data storage server.
MainClaim: A method comprising:downloading an index of files accessed or modified on a second electronic device onto a first electronic device from the second electronic device or from a data storage server on a network;displaying on the first electronic device a user selectable list of files based on the index of files;issuing a request for a file selected by a user from the list of files from the first electronic device to the second electronic device or to the data storage server; andreceiving the file selected by the user onto the first electronic device from the second electronic device or from the data storage server.

2010/0082567	System and method for placeshifting media playback	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Hodge; Andrew | Fadell; Anthony Michael | Lee; Jeffrey Theodore | Ellis; Shawn A. | Wood; Policarpo | Cannistraro; Alan Christopher	707	G06F	20080930	2	94%	☐

Abstract: Systems and methods of placeshifting media playback between two or more devices are provided. For example, a method for placeshifting media may include downloading onto a first device an index of files accessed or modified on a second device via a data storage server, at least one of the files being a media file played on the second device. The first device may display a user selectable list of the files on the first device before issuing a request for the media file to the data storage server. The data storage server may send the media file to the first device from the data storage server, and the first device may play back the media file where the second device left off.
MainClaim: A method comprising:downloading an index of files accessed or modified on a second electronic device onto a first electronic device from a data storage server on a network when an application is launched on the first electronic device,wherein at least one file of the index of files comprises a media file played on the second electronic device;displaying on the first electronic device a user selectable list of files based on the index of files;issuing a request for the media file from the first electronic device to the data storage server when the media file is selected by a user from the list of files; andreceiving the media file onto the first electronic device from the data storage server.

2009/0276547	System and method for simplified data transfer	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Hodge; Andrew | Fadell; Anthony Michael	710	G06F	20080930	2	94%	☐

Abstract: Systems and methods of performing a simplified data transfer are provided. For example, a simplified data transfer system may include two or more devices configured to perform a simplified data transfer. The first device may be configured to save and transfer data associated with applications open on the first device. When the second device initiates communication, the first device may automatically send the open application data to the second device.
MainClaim: A method comprising:establishing communication with a device, wherein the device includes data associated with at least one open application running on the device;exchanging device information via the established communication, wherein the device information includes a list of the data associated with the at least one open application;displaying the list of the data associated with the at least one open application in a user selectable format on a user interface;receiving a selection by a user of at least part of the list of the data associated with the at least one open application;communicating a request to the device via the established communication to transfer at least part of the data associated with the at least one open application, wherein the request is based on the selection by the user; andreceiving the requested data from the device via the established communication.

7,720,436	Displaying network objects in mobile devices based on geolocation	Nokia Corporation	Hamynen; Kimmo | Korhonen; Pasi | Kahari; Markus | Sorvari; Antti | Huhtala; Yka | Murphy; David | Paalasmaa; Joonas	455	H04B	20060109	0	100%	☐

Abstract: Displaying network content searches on mobile devices involves obtaining results of a network content request via a mobile device. A geolocation of at least one object associated with the results of the network content request is also obtained. A scene is viewed in a camera view of the mobile device. A virtual location is determined in the camera view. The virtual location represents the actual location of the object relative to the scene contained in the camera view. A graphic representing the object is then displayed at the virtual location in the camera view.
MainClaim: A method comprising: obtaining results of a network content request via a mobile device; determining a geolocation of at least one object associated with the results of the network content request; determining a camera view associated with the mobile device; determining a virtual location in the camera view that represents the actual location of the object relative to a scene contained in the camera view; and displaying via the mobile device a graphic

representing the object at the virtual location in the camera view.

2009/0006336	LOCATION BASED MEDIA ITEMS	Apple Inc.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	707	G06F	20080125	1	96%	☐

Abstract: Media items can be distributed to mobile devices based on the location of the media device. The media items can be associated with location information, which can be examined and distributed to those devices whose proximate area includes the location information associated with the media items.
MainClaim: A method comprising:communicating location information associated with a device to a server, the location information including boundary information defining a geographic area depicted by a current map display associated with the device;receiving at the device media items from the server, the media items comprising vicinity content associated with the location information, the vicinity content comprising content associated with the geographical area defined by the boundary information; andpresenting the media items received at the device to a user.

2009/0005071	Event Triggered Content Presentation	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Chaudhri; Imran A.	455	H04Q	20080324	2	96%	☐

Abstract: Methods, computer program products, systems and data structures for generating property instructions are described. Associated with the property instructions may include a property table. The property table may identify the detection of a particular geographic location as a trigger event, and the display of an attribute (or attributes) of a display property as an action. When a mobile device comes within a defined range of a geographic area as defined in the property table, the attribute of the display property is displayed on the mobile device.
MainClaim: A method comprising:receiving location information associated with a device;identifying an attribute of a display property corresponding to a geographic location associated with the received location information; andpresenting the attribute on the device.

2009/0005021	LOCATION-BASED CATEGORICAL INFORMATION SERVICES	Apple Inc.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E.	455	H04Q	20080527	2	95%	☐

Abstract: A selection of a category of interest and location information is used to determine categorical information that is provided to a device. In some implementations, the device includes a touch-sensitive display and presents the categorical information on a map using an indicator. In some implementations, the categorical information can be shared and/or updated by others.
MainClaim: A method comprising:receiving first information associated with a category of interest from a mobile device;receiving second information identifying a geographic location of the mobile device;determining categorical information using the first information and the second information;providing the categorical information to the mobile device including information used by the mobile device to represent the categorical information on a display associated with the mobile device; andreceiving third information to share the categorical information with a second user.

7,721,210	Electronic calendar system	Nokia Corporation	Mansikkaniemi; Tapio | Keinonen; Turkka | Wikberg; Harri | Boestad; Natalia | Koppinen; Anne | Kirjavainen; Anne | Valtonen; Anna | Jokela; Ritta | Piippo; Petri | Willstedt; Charlotta | Davidsson; Marcus | Ylonen; Otso	715	G06F	20001129	0	100%	☐

Abstract: A wireless system having a central family calendar. Individual family members may access the family calendar from their wireless devices. The system also includes telephone and address information for non-family members. Important dates such as birthdays, associated with the non-family members may automatically appear in the calendar. The system may be incorporated into other family accessible devices such as a family bulletin board.
MainClaim: An apparatus comprising: a processor configured to communicate with a plurality of wireless devices operable to belong to a group, the processor configured to perform: receiving calendar information from one or more of the plurality of wireless devices, the calendar information comprising one or more calendar events from a first wireless device of the group and one or more private calendar events from the first wireless device of the group; maintaining a group calendar comprising the one or more calendar events and one or more additional calendar events from one or more wireless devices of the group; providing access to the group calendar to the plurality of wireless devices of the group; maintaining an individual calendar corresponding to the first wireless device of the group, the individual calendar comprising the one or more calendar events, the one or more additional calendar events, and the one or more private calendar events; providing access to the individual calendar only to the first wireless device of the group; and transmitting a signal to the first wireless device associated with a graphical user interface, wherein the signal is configured to cause the graphical user interface to display each additional calendar event marked with a graphical indicator corresponding to the wireless device from which the calendar event was received, and to display each calendar event and each private calendar event marked with a graphical indicator corresponding to the first wireless device.

2009/0228322	Processing Invitations And Accepting Configuration Information on a Device	APPLE INC.	van Os; Marcel MWA | Anzures; Freddy A.	705	G06Q	20080930	7	95%	☐

Abstract: Systems, methods, and computer program products display invites on a mobile device calendar. An invitation is received that identifies an event having a start time and a duration. The invitation is presented to a user of a mobile device, where the mobile device includes two or more calendars. The invitation is associated with at least one of the two or more calendars, and the event is displayed in at least one calendar associated with the invitation.
MainClaim: A method, comprising:receiving an invitation, the invitation identifying an event having a start time and a duration;presenting the invitation to a user of a mobile device, the mobile device including two or more calendars;associating the invitation with at least one of the two or more calendars; anddisplaying the event in the at least one calendar associated with the invitation.

2010/0082821	Device-to-device workflows	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mayo; Sean Anthony | Nakajima; Taido Lantz	709	G06F	20080930	1	94%	☐

Abstract: Systems, methods, and devices are provided for performing a workflow with two or more electronic devices. Embodiments include an initiator electronic device that may function to control the workflow and send instructions for executing the workflow to a target electronic device. The initiator device may generate instructions for the workflow based on properties received from the target device. The instructions generated by the initiator may allow both devices to accomplish a shared goal, such as exchanging contact information. In some embodiments, the initiator device may include a graphical user interface for creating workflows, downloading workflows from a web service, and entering preferences governing the performance of the workflows.
MainClaim: A method for performing an action on an electronic device, the method comprising:establishing a communication link between an initiator device and a target device;receiving properties by the initiator device from the target device through the communication link;transmitting instructions determined based on the properties from the initiator device to the target device to enable the target device to transmit data to the initiator device, wherein the properties specify one or more operating capabilities of the target device; andperforming the action by the initiator device using the data from the target device.

2009/0307105	User Interface for Application Management for a Mobile Device	APPLE INC.	Lemay; Steve | Kelly; Sean	705	G06F	20090115	2	92%	☐

Abstract: This specification describes technologies relating to user interfaces for mobile devices. In general, one aspect of the subject matter described in this specification can be embodied in methods that include the actions of receiving a touch input to access an application management interface on a mobile device; presenting an application management interface; receiving one or more inputs within the application management interface including an input to install a particular application; installing the selected application; and presenting the installed application.
MainClaim: A method comprising:receiving a touch input to access an application management interface on a mobile device;presenting an application management interface;receiving one or more inputs within the application management interface including an input to install a particular application;installing the selected application; andpresenting the installed application.

7,403,769	System and method for music synchronization in a mobile device	Nokia Corporation	Kopra; Toni | Makipaa; Mikko | Ronkainen; Sami	455	H04Q	20040323	0	100%	☐

Abstract: A computer program embodied in a computer readable medium in a mobile station MS includes instructions to display a first identifier, such as a song title, associated with a first media (music or video) file and a second identifier identified with a second media file. The first identifier indicates that the first media file is stored in the MS and the second identifier indicates that the file is not stored within the MS. Five such identifiers are disclosed, with functionality to up/download the media files one or more at a time from a PC or a networked server. Playlists and albums may be similarly indicated in their identifiers. The user is enabled to create and edit playlists on the MS without regard to what media files are stored on the MS. The MS may store file identifiers for the database maintained on the PC, a large-scale database maintained at a media service server, or a portion thereof. A mobile station is also described.
MainClaim: A computer readable storage media embodying a computer program, comprising: a first set of computer instructions to display at a mobile station MS a plurality of identifiers each associated with a digital media file, wherein a first identifier indicates that a first media file associated with the first identifier is stored within the MS, and a second identifier indicates that a second media file associated with the second identifier is not stored within the MS and is stored at a separate device other than the MS, regardless of whether the MS is in communication with the separate device.

2009/0064056	Graphical User Interface with Location-Specific Interface Elements	Apple Inc.	Anderson; Alexandrea | Miller; Mark | Mirrashidi; Payam | Verosub; Ellis M. | Strand; Tyler A. | Rossell; Joseph M.	715	G06F	20070904	1	92%	☐

Abstract: Improved approaches to allow a portable electronic device to dynamically present location-specific information while the portable electronic device is at a predetermined location are disclosed. In one embodiment, the

portable electronic device has a display that can display the location-specific information and has wireless capabilities for use in receiving the location-specific information from the server. The location-specific information can, for example, augment other information that is to be presented on the display. In one embodiment, the location-specific information can be information pertaining to a media item being played in an establishment, such as a store, where the portable electronic device is located.
MainClaim: A graphical user-interface for a portable electronic device, comprising: one or more display panels, wherein at least one of the one or more display panels is capable of displaying a location-specific display element.

2010/0121741	AUDIO SAMPLING AND ACQUISITION SYSTEM	Apple Inc.	Hotelling; Steve | Hodge; Andrew Bert | Schubert; Emily Clark | Borchers; Robert Edward | Dorogusker; Jesse L. | Bell; Chris	705	G06F	20100119	1	92%	☐

Abstract: Techniques for facilitating purchase of media items, such as digital media assets, are disclosed. A computing device, e.g., a portable media device, can save media indicia pertaining to one or media items of interest to a user. The media indicia can thereafter be use to purchase the one or more media items or other products associated therewith.
MainClaim: A method comprising:receiving, at a media commerce server, media content identifying information from a client;identifying, by the media commerce server, one or more media assets corresponding to the media content identifying information;generating, by the media commerce server, a media access response including information enabling retrieval of the one or more identified media assets; andsending, by the media commerce server, the media access response to the client.

2008/0040328	CREATION, MANAGEMENT AND DELIVERY OF MAP-BASED MEDIA ITEMS	Apple Computer, Inc.	Verosub; Ellis M.	707	G06F	20070109	1	92%	☐

Abstract: Improved techniques to facilitate generation, management and delivery of personalized media items for users are disclosed. Users are able to influence or control content within a personalized media item. According to one aspect, personalized media items can pertain to generation and delivery of map-based media items. These media items are playable by a media playback device. For example, when a map-based media item is played by a media playback device, an audio output and/or a visual output can be provided. The audio output can be provided by digital audio, and the visual output can be provided by at least one digital image that is associated with at least a portion of the digital audio.
MainClaim: A computer-implemented method for forming a map-based media item, said method comprising:(a) receiving a request for a map-based media item pertaining to mapping a route from a start location to a destination location;(b) obtaining map information based on a determined route from the start location to the destination location, the map information including text directions and at least one map image;(c) causing the text directions to be converted into voice directions; and(d) forming the map-based media item using at least the voice directions and the at least one map image.

7,627,608	Sharing of media using contact data	Nokia Corporation	Strandell; Toni | Wong; Davin | Tammi; Tuomas	707	G06F	20070207	0	100%	☐

Abstract: Media sharing using contact data involves identifying contact records on a personal electronic device of a user. Each of the contact records includes a contact address of a person associated with the respective contact record. The contact records are communicated to a media sharing service via a network. Media items of the user are sent to the sharing service. One or more of the contact records are associated with each of the media items. A notification is sent to the persons associated with the one or more contact records. The notification describes sharing of the media items associated with the contact records. The sharing service facilitates access to the media items by the persons associated with the contact records in response to the persons receiving the notification.
MainClaim: A method, comprising: receiving media items of a user at a sharing service to which the user is registered; receiving one or more contact records of a personal device of the user that are associated with the media items, wherein a person associated with the one or more contact records is not registered with the sharing service; sending an electronic notification that describes sharing of the media items to the person associated with the one or more contact records, wherein the electronic notification includes an access code unique to the person; facilitating, via the sharing service, access to the media items by the person associated with the contact records based on the access code, wherein the access code further allows the person to access other content on the sharing service shared to the person by other users registered with the sharing service.

2009/0077026	Electronic Communication Messaging	APPLE INC.	Yanagihara; Kazuhisa	707	G06F	20070917	1	93%	☐

Abstract: Systems, methods, and apparatus related to suggesting components of an electronic communication. A component input associated with an electronic communication is received. Suggested recipient address sets of the electronic communication based on previous electronic communications associated with the component input are identified and presented to a user for selection.
MainClaim: A computer-implemented method comprising:identifying an address set in an electronic communication;comparing the address set in the electronic communication to historical address sets; andsuggesting one or more historical address sets for the electronic communication based on the comparison.

7,093,198	Skins for mobile communication devices	Nokia Corporation	Paatero; Lauri | Lindholm; Christian	715	G06F	20010816	0	100%	☐

Abstract: A skin is provided for the user interface of a mobile communication device. The skin is obtained by providing

a data file including information defining characteristics of the skin, providing a markup language style sheet describing a manner in which data is to be represented on a display of the mobile communication device; transforming the data file into a markup language document according to the markup language style sheet, and providing the markup language document to an user interface application to represent the data on the display.
MainClaim: A method of providing a skin from a wireless communication network for a user interface of a mobile communication device for operating using the wireless communication network with the user interface being variable to vary display of data on a display of the mobile communication device, the method comprising: in the wireless communication network providing a data file including information defining characteristics of the skin for the user interface based upon characteristics of the mobile communication device and providing a markup language style sheet describing a manner in which data is to be displayed on the display of the mobile communication device; transforming the data file into a markup language document according to the markup language style sheet in dependence upon the characteristics of the mobile communication device; and providing the markup language document to a user interface application to cause the display of the data on the display in accordance with the user interface.

2009/0228322	Processing Invitations And Accepting Configuration Information on a Device	APPLE INC.	van Os; Marcel MWA | Anzures; Freddy A.	705	G06Q	20080930	7	93%	☐

Abstract: Systems, methods, and computer program products display invites on a mobile device calendar. An invitation is received that identifies an event having a start time and a duration. The invitation is presented to a user of a mobile device, where the mobile device includes two or more calendars. The invitation is associated with at least one of the two or more calendars, and the event is displayed in at least one calendar associated with the invitation.
MainClaim: A method, comprising:receiving an invitation, the invitation identifying an event having a start time and a duration;presenting the invitation to a user of a mobile device, the mobile device including two or more calendars;associating the invitation with at least one of the two or more calendars; anddisplaying the event in the at least one calendar associated with the invitation.

2009/0064055	Application Menu User Interface	APPLE INC.	Chaudhri; Imran A. | Herz; Scott | Jobs; Steven | Anzures; Freddy A.	715	G06F	20070904	1	92%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for presenting user interface elements. A first page of one or more user interface elements is presented on a touch-sensitive display. Each of the user interface elements corresponds to a respective application. A gesture performed on the touch-sensitive display is detected. In response to the detected gesture, a second page of one or more user interface elements is presented on the touch-sensitive display.
MainClaim: A method, comprising:presenting a first page of one or more user interface elements on a touch-sensitive display, each of the user interface elements corresponding to a respective application;detecting a gesture performed on the touch-sensitive display; andin response to the detected gesture, presenting a second page of one or more user interface elements on the touch-sensitive display.

2009/0064108	Configuring Software Stacks	APPLE INC.	De Atley; Dallas | Herz; Scott | Platzer; Andrew	717	G06F	20080716	2	92%	☐

Abstract: The present disclosure is directed to a system and method for configuring software stacks. In some implementations, a method for configuring devices includes automatically identifying one or more applications in the software stack based, at least in part, on at least one of a plurality of identifiable device models or types. The software stack is stored in a device. The one or more applications is automatically configured for execution in the device in accordance with the identified device model. Each of the plurality of identifiable device models is associated with a different configuration of the software stack.
MainClaim: A software stack comprising computer readable instructions embodied on media and operable to:automatically identify one or more applications in the software stack based, at least in part, on at least one of a plurality of identifiable device models or types, wherein the software stack is stored in a device; andautomatically configure the one or more applications for execution in the device in accordance with the identified device model, wherein each of the plurality of identifiable device models is associated with a different configuration of the software stack.

7,246,325	System and method for functional elements	Nokia Corporation	Kautto-Koivula; Kaisa | Huhtaniemi; Marita | Lahdesmaki; Petri	715	G06F	20031217	0	100%	☐

Abstract: Systems and methods whereby, for example, one or more functional elements can be established and/or employed. Such functional elements might serve a number of purposes. For instance, such functional elements might be employable in interoperating with devices, software, and/or the like, in working with entities, and/or the like. Such functional elements may, for example, be arrangeable in an associative and/or hierarchical manner.
MainClaim: A method for data handling performed by computer instruction stored on a memory and executed by a computer, comprising: receiving, from a user via a user interface, selection of a functional element template, wherein said functional template possesses one or more attributes; receiving, from the user via the user interface, indication regarding establishment of a functional element, wherein one or more of the attributes are selected by the user; establishing the functional element, wherein the selected attributes are passed to said functional element from said functional element template; providing to the user a user interface corresponding to the functional element, wherein the user interface corresponding to the functional element is employable by the user in control of a unit; and employing the functional element in interoperation with the unit, wherein one or more interface software modules are employed in said

interoperation, said interface modules accepting generic commands and outputting commands understood by said unit.

7,730,223	Wireless home and office appliance management and integration	Apple Inc.	Bavor; Clay | Levinson; Jesse	710	G06F	20050801	1	92%	☐

Abstract: The present invention provides systems and methods for managing and controlling networked devices. A system comprises a host application executing on, for example, a personal computer, and one or more networked devices executing a client application. A networked device includes a consumer appliance equipped with network capability, a digital device such as MP3 players and DVRs, an electronically-controlled device such as a light circuit or other type of circuit, and the like. The host application automatically establishes communication with the networked device. The networked device configures a user interface for user control of the networked device. The host application provides a graphical layout of the networked device.
MainClaim: A computer-implemented method for managing and controlling network appliances, comprising: receiving, from a networked device, a connection request; automatically establishing network communication with the networked device responsive to the connection request; displaying a graphical representation of an environment containing the networked device and a plurality of other networked devices, wherein a networked device is represented by an icon indicating the location of the networked device around the environment; receiving, from the networked device, user interface information that specifies user interface components related to a service provided by the networked device, the user interface components providing interactive control of the networked device; and generating a user interface responsive to the user interface information, and allowing interacting with a plurality of the user interface components and the icon.

6,892,067	Script based interfaces for mobile phones	Nokia Corporation	Sharma; Dipanshu | Ginzboorg; Yossi	455	H04M	19991230	0	100%	☐

Abstract: A mobile phone utilizes a script based user interface. The script is stored in memory of the phone and is adapted to cause a browser to utilize one of a plurality of internal features in order to perform a function, and to display a user interface for the function on the display of the phone. Information is transferred between mobile communication devices by organizing the information as a script. The mobile communication device processes the script and performs a function prescribed by the script when it is received. In a method of real-time wireless communication, a WML script defining a user interface is sent from a first mobile device to a second mobile device. A data file is set up in the second device in response to the WML script information. Real-time script information is then repeatedly sent from the first device to the second device. The user interface is displayed on the second device and a function is performed in response to the real-time script information.
MainClaim: A wireless communication device comprising:

a processing unit;

a memory connected to the processing unit;

a display connected to the processing unit;

a plurality of internal features, each feature providing a unique functionality application, said plurality of internal features being located in hardware, firmware and/or an operating system of the wireless communication device;

a cellular transceiver connected to the processing unit and adapted to communicate with another wireless communication device located at a remote location; and

a browser application adapted to receive information through the cellular transceiver from the another wireless communication device and display said information on the display;

wherein, in response to said browser receiving a script relating to a predefined functions, the processing unit is adapted to forward said script into said memory for storing, and to cause said browser to utilize one of the plurality of internal features in order to perform the predefined function and to display a user interface for said predefined function, said wireless communication device adapted to perform a method of real-time wireless communication with the another wireless communication device located at the remote location, said method comprising:

receiving information included as a WML script from said another wireless communication device at the remote location, said WML script defining a user interface;

setting up a data file in response to said WML script information;

repeatedly receiving real-time script information from said another wireless communication device; and

displaying said user interface and performing an internal function in response to said real-time script information.

2009/0064108	Configuring Software Stacks	APPLE INC.	De Atley; Dallas | Herz; Scott | Platzer; Andrew	717	G06F	20080716	2	92%	☐

Abstract: The present disclosure is directed to a system and method for configuring software stacks. In some implementations, a method for configuring devices includes automatically identifying one or more applications in the

software stack based, at least in part, on at least one of a plurality of identifiable device models or types. The software stack is stored in a device. The one or more applications is automatically configured for execution in the device in accordance with the identified device model. Each of the plurality of identifiable device models is associated with a different configuration of the software stack.
MainClaim: A software stack comprising computer readable instructions embodied on media and operable to:automatically identify one or more applications in the software stack based, at least in part, on at least one of a plurality of identifiable device models or types, wherein the software stack is stored in a device; andautomatically configure the one or more applications for execution in the device in accordance with the identified device model, wherein each of the plurality of identifiable device models is associated with a different configuration of the software stack.

2009/0005080	Location-Aware Mobile Device	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Chaudhri; Imran A. | Mahowald; Peter Henry	455	H04Q	20080627	2	92%	☐

Abstract: One or more location-based clients can be activated on a mobile device for providing location-based services. The location-based clients can be provided with information (e.g., presets, defaults) related to the current location and/or mode of the mobile device. The information can be obtained from one or more network resources. In some implementations, a number of location-based clients can run concurrently on the mobile device and share information.
MainClaim: A method comprising:activating a first location-based client on a mobile device;determining a location of the mobile device;determining a mode associated with the device;transmitting the location and mode to a network resource;receiving information related to the location and mode from the network resource; andproviding the information to the first location-based client.

7,461,350	Application specific key buttons in a portable device	Nokia Corporation	Salo; Juha H. | Vermola; Larri | Naumi; Tero	715	G06F	20041230	0	100%	☐

Abstract: Aspects of the invention implement and execute commands of applications and/or services on portable devices with various key button configurations. Certain aspects of the invention create and display an intermediary user interface on a display of a portable device in order to match and utilize an application's commands with the various capabilities of different portable devices.
MainClaim: A computer-readable medium having computer-executable instructions for performing: a) retrieving a command profile for an application, wherein the command profile comprises a number of commands corresponding to the application; b) retrieving a key button profile for a digital device; c) comparing the command profile and the key button profile; d) creating an intermediary user interface based upon the comparison of the command profile and key button profile, wherein the creation of the intermediary user interface comprises a creation of a graphical intermediary user interface if a number of key buttons on a side of a display of the digital device is equal to or more than the number of commands corresponding to the application; e) displaying a user interface on the display of the digital device, the user interface divided into at least two display areas, the at least two display areas including a first display area and a second display area, the first display area including an application user interface, the second display area including the intermediary user interface; and f) displaying intermediary buttons on the intermediary user interface, the intermediary buttons displayed corresponding to the created intermediary user interface.

2009/0060452	Display of Video Subtitles	APPLE INC.	Chaudhri; Imran A.	386	H04N	20070904	1	93%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for presenting subtitles. A video is played on a display of a device. A display mode for the video is detected. A subtitle is presented in one of a plurality of presentation formats based on the detected display mode.
MainClaim: A method, comprising:playing a video on a display of a device;detecting a display mode for the video; andpresenting a subtitle in one of a plurality of presentation formats based on the detected display mode.

2009/0178010	Specifying Language and Other Preferences for Mobile Device Applications	APPLE INC.	Chaudhri; Imran A.	715	G06F	20080910	2	93%	☐

Abstract: A user interface for specifying a preference for content is displayed over the content on a display of a mobile device. Preferences (e.g., language preferences) can be specified for audio, closed captions, subtitles and any other features or operations associated with the mobile device. In one aspect, the user interface is a partially transparent sheet that at least partially overlies the content. The sheet can be navigated (e.g., scrolled) in response to input (e.g., touch input). In one aspect, the specified option is made a default option for at least some other applications running on the mobile device. In one aspect, the content is video which is automatically paused while the user interface is displayed.
MainClaim: A method comprising:presenting a user interface on a mobile device for displaying currently playing content;obtaining a first touch input through the user interface; andresponsive to the first touch input, overlaying a partially transparent sheet on the user interface, the sheet including one or more options associated with the currently playing content.

2010/0052843	SYSTEMS AND METHODS FOR SAVING AND RESTORING SCENES IN A MULTIMEDIA SYSTEM	APPLE INC.	Cannistraro; Alan	340	G05B	20080902	3	93%	☐

Abstract: Systems and methods for saving and restoring scenes in a multimedia system with minimal configuration are provided. The techniques of the present invention can allow the states of the components in the multimedia system to be captured in a scene. Once the scene has been saved, the scene can be restored at a later time. A remote control system for recommending scenes by comparing states of components in the current scene with states of components in saved scenes is also provided. The remote control system can also recommend scenes based on usage patterns. Moreover, the remote control system can allow users to designate one or more saved scenes as favorite scenes.
MainClaim: A method for allowing a user to save states of components comprising:discovering at least one component operative to be controlled by an electronic device;receiving a state broadcast from the at least one component, wherein the state comprises software and hardware settings of the at least one component;detecting a user instruction to save the state; andsaving the state of the at least one component in response to detecting.

7,110,790	Quick access list for previously accessed network addresses	Nokia Corporation	Nielsen; Peter Dam | Kraft; Christian	455	H04M	20011003	0	100%	☐

Abstract: A method of providing access to network addresses for use in a mobile telecommunications device allowing navigation between different addresses and displaying of information therefrom, comprises compiling a first list of addresses bookmarked by a user and then compiling a second list of bookmarks selected on the basis of previous access by the user to said addresses via said first list. The second list may comprise the bookmarked addresses accessed most recently by the user, which will often be those most frequently used. However, the second list may instead comprise the addresses most frequently accessed by the user. The list may further contain entries corresponding to network addresses accessed by the user typing in the address. The provision of a second, selective list of addresses allows a user to access a favourite network address without scrolling through large numbers of bookmarks.
MainClaim: A mobile telecommunications device comprising: a browser to permit a user to navigate between different network addresses and display information therefrom; and a processor to compile a first list of bookmarked addresses and to compile a second list of bookmarks selected from the group consisting of: (i) bookmarks selected on the basis of previous access by the user to said bookmarked addresses via said first list, (ii) bookmarks of network addresses manually entered by the user, and (iii) bookmarks selected on the basis of access by the user by following a link to a homepage.

2009/0005981	Integration of Map Services and User Applications in a Mobile Device	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	701	G01C	20080125	2	92%	☐

Abstract: A location is specified, e.g., a current location of a mobile device or a user-specified location. A representation of the location is represented on a map displayed by the mobile device. A set of contacts having a corresponding address in proximity to the location is determined. A graphical representation of the set of contacts is provided on the map proximate to the one or more corresponding addresses. If the location is a current location of a mobile device, the map can be updated in response to the current location changing with a representation of an updated current location and a representation of an updated set of contacts.
MainClaim: A method comprising:providing a representation of a location on a map;determining a set of contacts having a corresponding address in proximity to the location, where a contact corresponds to contact information for an entity included in an address book and the contact information includes at least a name and an address associated with the entity; andproviding a graphical representation of the set of contacts on the map proximate to the one or more corresponding addresses.

7,274,927	Mobile telecommunications data service	Nokia Corporation	Olrik; Jakob Christian	455	H04Q	20010725	0	100%	☐

Abstract: A WAP enabled mobile telephone handset (MS 1) can access WAP servers using a browser which is located at a remote phone server (1). Image data produced by the browser at the phone server is converted into a bitmapped image that is sent to the handset for display. The browser at the phone server (1) can also be accessed through a personal computer (PC 1). The browser settings remain synchronized irrespective of whether the handset (MS 1) or (PC 1) is utilized. The phone server can also run other applications such as calendars, address books and computer games.
MainClaim: A network for providing a mobile telecommunications data service, comprising: a mobile client device including user actuable controls and a display device to provide a display of data; and a server located remotely of the mobile client device to provide data thereto and being configured to run a server process locally on the server that provides a computer generated mobile client corresponding to the mobile client device, the computer generated mobile client being operable in response to the operation of the controls of the mobile client device to produce an image corresponding to an entire display to be displayed by the mobile client device, the server being further configured to run an image capture process to capture the image produced by the computer generated mobile client and to feed the captured image to the mobile client device to be displayed on the display thereof, the captured image comprising a graphic image corresponding to the display generated by the computer generated mobile client, wherein the captured image is not represented by the text of a markup language file.

2009/0209240	AUTO MESSAGING TO CURRENTLY CONNECTED CALLER	APPLE INC.	Mahowald; Peter Henry	455	H04M	20080214	3	93%	☐

Abstract: A messaging application and a telephony application can be activated on a mobile device for sending messages to a connected party while a telephone connection is established between the mobile device and the connected party. A user can compose a message or send a file from the mobile device to the connected party based on the caller details associated with the connected party.
MainClaim: A method, comprising:presenting a user interface on a mobile device having telephony and messaging capability, the user interface including a user interface element which is operable for specifying an option to send information to one or more call participants during a telephone call;detecting caller details associated with the one or more call participants;receiving user input specifying the information;receiving user input selecting the option to send the information; andsending the information to the one or more call participants during a telephone call using the caller

details.

7,681,149	User interface display for set-top box device	Nokia Corporation	Lahdesmaki; Petri	715	G06K	20030521	0	100%	☐

Abstract: User interface systems and methods are disclosed. The user interfaces include at least one focus pointer that allow a user to quickly access the elements contained in a plurality of folders. A fixed focus pointer selects one of a plurality of elements of a main folder in response to interaction of a user. A moveable focus pointer scrolls through a plurality of elements of the first subfolder to select a second subfolder in response to interaction of a user. The user interface may include additional folders and focus pointers.
MainClaim: An apparatus comprising: a display generator configured to generate a user interface comprising: a main folder containing a plurality of elements that are displayed linearly along a first axis; at least a first sequential subfolder containing a plurality of elements linked to the main folder, wherein the plurality of elements of the first sequential subfolder is displayed linearly along a second axis; a fixed focus pointer configured to select one of the plurality of elements of the main folder in response to interaction of a user; and at least one moveable focus pointer configured to be movable over the plurality of elements of the at least first sequential subfolder to select one of the plurality of elements of the first sequential subfolder in response to interaction of a user thereby causing at least a second sequential subfolder to be displayed, wherein the at least one second sequential folder contains a plurality of elements linked to the at least one first sequential subfolder such that the plurality of elements of the main folder, the plurality of elements of the at least one first sequential subfolder, and the plurality of elements of the at least one second sequential subfolder are concurrently displayable, wherein the plurality of elements of the second sequential subfolder are displayed linearly along a third axis that is non-parallel with the second axis.

2010/0052843	SYSTEMS AND METHODS FOR SAVING AND RESTORING SCENES IN A MULTIMEDIA SYSTEM	APPLE INC.	Cannistraro; Alan	340	G05B	20080902	3	93%	☐

Abstract: Systems and methods for saving and restoring scenes in a multimedia system with minimal configuration are provided. The techniques of the present invention can allow the states of the components in the multimedia system to be captured in a scene. Once the scene has been saved, the scene can be restored at a later time. A remote control system for recommending scenes by comparing states of components in the current scene with states of components in saved scenes is also provided. The remote control system can also recommend scenes based on usage patterns. Moreover, the remote control system can allow users to designate one or more saved scenes as favorite scenes.
MainClaim: A method for allowing a user to save states of components comprising:discovering at least one component operative to be controlled by an electronic device;receiving a state broadcast from the at least one component, wherein the state comprises software and hardware settings of the at least one component;detecting a user instruction to save the state; andsaving the state of the at least one component in response to detecting.

2009/0178010	Specifying Language and Other Preferences for Mobile Device Applications	APPLE INC.	Chaudhri; Imran A.	715	G06F	20080910	2	92%	☐

Abstract: A user interface for specifying a preference for content is displayed over the content on a display of a mobile device. Preferences (e.g., language preferences) can be specified for audio, closed captions, subtitles and any other features or operations associated with the mobile device. In one aspect, the user interface is a partially transparent sheet that at least partially overlies the content. The sheet can be navigated (e.g., scrolled) in response to input (e.g., touch input). In one aspect, the specified option is made a default option for at least some other applications running on the mobile device. In one aspect, the content is video which is automatically paused while the user interface is displayed.
MainClaim: A method comprising:presenting a user interface on a mobile device for displaying currently playing content;obtaining a first touch input through the user interface; andresponsive to the first touch input, overlaying a partially transparent sheet on the user interface, the sheet including one or more options associated with the currently playing content.

2010/0064255	CONTEXTUAL MENUS IN AN ELECTRONIC DEVICE	Apple Inc.	Rottler; Benjamin Andrew | Wood; Policarpo	715	G06F	20080905	3	92%	☐

Abstract: A system and method for displaying menus of selectable options to a user are provided. The menus may include options that are contextually related to a current mode of the device to provide relevant options to a user. The electronic device modes may include, for example, a media mode, a radio mode, a workout mode, a calendar or event mode, a clock mode, a stopwatch mode, or any other suitable mode. To further enhance a user's experience, the displayed menus may not cover the entirety of the screen such that a portion of the content associated with a current mode or application may be visible, thus providing context to the displayed options.
MainClaim: A method for displaying a menu with selectable contextual options using a portable electronic device, comprising:displaying non-selectable content associated with a current mode of an electronic device, wherein the current mode comprises at least one of media, recording, audio book, radio, workout, calendar, event, clock, and stopwatch modes;detecting the current mode;identifying at least one option associated only with the detected current mode;generating a menu comprising the identified at least one option; andoverlaying the generated menu on the displayed content associated with the identified current mode such that at least a portion of the content remains visible.

7,516,196	System and method for delivery and updating of real-time data	Nokia Corp.	Madan; Hemant | Makipaa; Mikko | Beletski; Oleg	709	G06F	20000321	0	100%	☐

Abstract: A system, method and computer program for receiving real-time data from a content provider and delivering it to a user terminal while using the minimum amount of communication bandwidth possible. This real-time data may take the form of any frequently changing data such as stock prices. The user logs on the system and specifies a portfolio or stocks he is interested viewing. The user may also select active keys which are to be continuously observed. Upon receipt of the real-time data from the content provider, the system, method and computer program determine whether the real-time data has changed from the last update. If no changes have occurred to the real-time data values or the real-time data is not associated the currently active keys then there is no real-time data downloaded to the user. Only if there is a change in real-time data values associated with active currently active keys will the real-time data be transmitted to the user terminal. Further, this system, method and computer program may communicate to any possible user terminal no matter what size screen since the position of each changed real-time data value is specified based on screen size the user terminal is using. Therefore, a user may monitor continuously changing real-time data values while using a mobile device such as a digital cellular phone.

MainClaim: A method comprising: receiving information at a content server from at least one content provider; storing at least one portion of the information; sending the at least one portion of the information to a user terminal for display on the user terminal; receiving, from an embedded applet in a remote mobile terminal, notification of active keys associated with a current display of the at least one portion of the information on the user terminal, wherein the notification is indicative of a change of an active key set when a page change occurs; receiving additional information at the content server, the additional information including a later version of the at least one portion of the information; identifying changed information parts by determining one or more differences between the later version of the at least one portion of the information and the stored at least one portion of the information; updating stored at least one portion of the information based on the changed information parts; and transmitting the changed information parts associated with the active keys to the embedded applet in the user terminal without also transmitting unchanged parts of the stored at least one portion of the information.

7,383,291	Method for sharing groups of objects	Apple Inc.	Guiheneuf; Bertrand | Maury; Sebastien | Gutknecht; Olivier | Jalon; Julien | Ryder; Scott	707	G06F	20040524	1	92%	☐

Abstract: A method of sharing a group of one or more objects between a plurality of users, in which one or more of said plurality of users is able to change parameter data of at least one said object. The method comprises storing at least one version of each said object; when an object is changed, creating a new version of the object, the new version of the object comprising additional data relating to the creation of the new version; storing the new version of the object together with any version of that object before the change; providing all versions of the object to each of said plurality of users; and using the additional data provided for each version of the object to determine how to display the object. The group may be a calendar and each object may be an event in the calendar. In that case, the object parameter data may comprise a start time of the event, an end time of the event, a description of the event, a status of the event, whether the event is to be repeated and the persons attending the event. The additional data may comprise an identification of the user who made the change, a time at which the change was made, a description of the change, a user comment relating to the change and an identification of the previous version of the event from which the present version was created.

MainClaim: A method of sharing a group of one or more objects between a plurality of users, in which one or more of said plurality of users is able to change parameter data of at least one said object, the method comprising: reading program code from a first memory and processing said program code with a first processing unit performing, storing at least one version of each said object, wherein the group is a calendar and wherein each object is an event in the calendar, and wherein the parameter data comprises at least one of a start time of the event, an end time of the event, and a description of the event, when the object is changed, creating a new version of the object, the new version of the object comprising additional data relating to the creating of the new version, storing the new version of the object together with the at least one version of the object before the change, and transmitting the new version of the object over a network connection, and reading program code from a second memory and processing said program code with a second processing unit performing, comparing a remote version of the object with the new version of the object over the network connection based on the additional data, determining a sequence relationship between the remote version of the object and the new version of the object based on the comparison, and displaying the object in accordance with the determined sequence relationship, wherein the sequence relationship determines a previous version of the object and a recent version of the object from the remote version of the object and the new version of the object, and wherein the displaying displays the recent version of the object, the displaying not displaying the previous version of the object.

6,959,207	Mobile emotional notification application	Nokia Corporation	Keinonen; Turkka | Hemanus; Juha	455	H04M	20001222	0	100%	☐

Abstract: In an emotional notification system, information about another party is entered into and stored in a terminal of a first party along with one or more data objects associated with the second party (such as an email from, to or about the second party, a file originated by the second party, etc.). Each time the first party activates at his terminal through an interface module a data object associated with a second party, a notifying message is sent to the second party to make the second party aware that the first party is devoting attention to the second party and to promote bonding between the two parties. The notifying message may take one of various, preferably unobtrusive forms, such as a vibration of a terminal belonging to the second party, which minimizes any distraction caused by the notifying message.

MainClaim: A method of informing a party assoicated with a data object that said data object has been activated by a user of a mobile terminal in which said data object is currently being stored, comprising the steps of:

associating a data object with an associated mobile terminal of an associated party, whereby said associated data object comprises association data identifying at least said associated mobile terminal, wherein said associated mobile terminal has a wireless link with a wireless communication network; and

storing said associated data in a memory of a storing mobile terminal, said associated data object being capable of activation by a user or said storing mobile terminal;

whenever a user of said storing mobile terminal activates said associated data object, transmitting a notifying message via the wireless communication network to the associated mobile terminal of the associated party; and

when the associated mobile terminal receives said notifying message, presenting an auditory, visual, and/or tactile signal to the associated party thereby informing the associated party that the associated data object stored on the storing mobile terminal has been activated by the user of said storing mobile terminal.

2008/0310305	Interruption control	Apple Inc.	Lee; Michael M.	370	H04J	20070614	2	92%	☐

Abstract: A communications system in which a user may control interruptions to ongoing communications operations is provided. Using a communications device, a user may perform any suitable communications operation (e.g., voice, video or data communications). In response to receiving a communications request from another device, the communications device may determine whether the other device is authorized to interrupt the ongoing communications operation using any suitable approach (e.g., priority rankings of devices, or specific exceptions for certain devices). The interruption, if authorized, may be in any suitable form including, for example, audio interruptions, visual interruptions, physical interruptions, or any other suitable interruption type.
MainClaim: A method for determining whether to interrupt an ongoing communications operation performed by a communications device, the method comprising:directing the communications device to perform a communications operation with a first device;receiving a request from a second device to initiate a communications operation with the communications device;determining whether the second device is authorized to interrupt the ongoing communications operations with the first device; andin response to determining that the second device is authorized to interrupt the ongoing communications operation with the first device, interrupting the ongoing communications operation with the first device.

2009/0170480	Systems and methods for intelligent and customizable communications between devices	Apple Inc.	Lee; Michael M.	455	H04M	20071228	3	92%	☐

Abstract: Systems and methods for providing a communications system are provided. The communications system can provide intelligent communications between devices, in which the system can identify appropriate communication modes for incoming communications requests based on a user's preferences and availability. The communications system can determine whether a user is participating in an activity. In response to determining that a user is participating in an activity, the communications system can automatically identify one or more preferred communication modes that are available to the user. In some embodiments of the present invention, the communications system can configure a communications device to send a message back to a contact's device if the communication mode of an incoming communications request is not preferred. The communications system can also allow a user to customize information that is displayed to a subset of the user's contacts.
MainClaim: A method of providing communication modes of a user comprising:identifying an activity in which the user is participating based on one or more categories of data;identifying one or more preferred communication modes for the user based on the activity;establishing a communications channel with a contact's device; andnotifying the contact's device of at least one preferred communication mode via the communications channel.

2009/0170492	User-programmed automated communications	Apple Inc.	Lee; Michael M.	455	H04M	20071228	5	92%	☐

Abstract: A communications device may be programmed to initiate a communications operation when a particular condition is met. The user may set any suitable condition, including for example a date and time, location, event, received or sent communications operation, or any other suitable criteria. The user may select any suitable contact method for the communications operation, including for example telephone, voicemail, email, text message, chatting, fax, or any other suitable method.
MainClaim: A method for scheduling a communications operation to be performed by a communications device, the method comprising:receiving a condition for performing the scheduled communications operation;determining whether the condition is satisfied; andperforming the scheduled communications operation in response to determining that the received condition is satisfied.

7,523,507	Delivery of non-permanent media files to a mobile station	Nokia Corporation	Leinonen; Marko | Leinonen; Anu	726	G06F	20040527	0	100%	☐

Abstract: A media file content provider 30 sends a non-permanent copy of a media file, such as a music or video file, to a second mobile station MS 34 in response to a request from a first MS 22. The copy may be rendered non-permanent by streaming it, by encrypting it, and by appending a first instruction to automatically delete it after playing. The first MS 22 may be given an option of delivery pathways, such as cellular 76, 78, WLAN 80, or DVB-H 84. After playing, an offer is made to the second MS 34 to purchase a permanent copy of the media file. If accepted, the content provider may provide another copy of the media file, or preferably a permanent decryption key or a second instruction that defeats the first instruction prior to its deletion of the media file.
MainClaim: A program of machine-readable instructions, tangibly embodied on an information bearing medium and executable by a digital data processor, to perform actions directed toward providing a media file to a third party mobile station, the actions comprising: providing a first party with a choice between a first wireless pathway and a different second wireless pathway for media file delivery; receiving a request over a network from the first party to deliver a particular media file to a third party mobile station that is identified in the request and a selection from among the first

and second wireless pathways; and providing a non-permanent copy of the particular media file to the third party mobile station via a first wireless network that comprises the first wireless pathway or via a second wireless network that comprises the second wireless pathway according to the selection.

2010/0082448	Media gifting devices and methods	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael | Hodge; Andrew	705	G06Q	20080930	2	92%	☐

Abstract: Various techniques are provided for the gifting between multiple electronic devices of media content provided by an online digital media provider. An offer and acceptance of a selected gift file is accomplished between a gifter device and a receiving giftee device using a near-field communication (NFC) connection. If a connection to the online provider is available, the gifter device may transmit a gift request by which the gifter's account is charged for the gift file. Thereafter, a gift file created using DRM keys associated with the giftee's account may be downloaded to the giftee device. If a network connection is unavailable, the giftee device may transfer a locked gift file and a corresponding gift license to the giftee device using a peer-to-peer connection. The giftee device may authenticate the license and unlock the gift file once a connection to the online provider is available.
MainClaim: A method for gifting one or more digital media files from a first device to a separate second device comprising:transmitting a gift offer from the first device to gift the one or more digital media files to the second device;receiving an acceptance of the gift offer from the second device; andtransmitting a gift request to a separate external server associated with an online digital media provider, the external server being configured to authorize the creation of a gift file corresponding to each of the one or more digital media files for transmission from the external server to the second device.

7,343,487	Datacast distribution system	Nokia Corporation	Lindqvist; Markus | Prokki; Kai-Uwe | Soinio; Markku | Muller; Dominique	713	H04L	20011010	0	100%	☐

Abstract: According to the present invention there is provided a datacast distribution system which allows for the distribution of movies, music, games, application software, and the like using a new or existing terrestrial digital video broadcast (DVB-T) network.
MainClaim: A system for the distribution of content over a wireless link using new and existing terrestrial digital video broadcast networks, comprising: one or more global caster modules, wherein each of the global caster modules receives content to distribute to all locations in a network; one or more local caster modules, wherein each of the local caster modules receives content to distribute to only certain locations in said network; and one or more datacast transmission devices associated with at least one of the modules, wherein the network utilizes bandwidth partitioning and allocation to optimize bandwidth by use of the global caster modules and the local caster modules, wherein the partitioning is based on day-type profiles that are mapped to calendar dates, wherein blocks are allocated based on bandwidth monitoring periods and deployment period blocks, wherein a bandwidth monitoring period determines time when free bandwidth is available, wherein based on the bandwidth available and day-type profiles one or more deployment blocks corresponding to one or more content providers are marked as reserved, and wherein one or more assigned identifiers corresponding to one or more of the deployment blocks are forwarded to one or more of the content providers.

2010/0017506	SYSTEMS AND METHODS FOR MONITORING DATA AND BANDWIDTH USAGE	Apple Inc.	Fadell; Anthony	709	G06F	20080929	1	92%	☐

Abstract: Access to a communications network may be provided via a data provider that may charge for access. In some cases, the access fee may be related to the amount of network resources consumed (e.g., amount of data downloaded or bandwidth used). In some cases, a user may have access to a particular amount of data provider resources and be required to pay an additional fee for using resources in excess of the particular amount. To assist the user in managing his data resource consumption, a resource utilization component may provide different alerts and notices informing the user of current consumption, expected future consumption, and recommendations for reducing data provider resources consumed (e.g., stopping particular processes or data provider requests, such as downloading media). If several electronic devices in a network are connected to the same data provider resources, a network component may manage the data provider resource use among the several electronic devices (e.g., allow only particular users or devices access).
MainClaim: A method for managing data provider resource consumption, comprising:monitoring data provider resource consumption;determining that the data provider consumption is within a predetermined range of a data provider resource limit; andautomatically providing a notice related to the consumed data provider resources in response to determining.

7,627,349	Alternative notifier for multimedia use	Nokia Corporation	Vetelainen; Asko | Toropainen; Teemu	455	H04B	20050711	0	100%	☐

Abstract: A method for displaying data on a portable electronic device first displays graphical data on a graphical display. An event that is independent of the graphical data is received at the device. Responsive to the event, an event type is selected from a list that associates each of at least two event types with one of at least two display formats. A notifier of the event, in the selected format, is then displayed on the graphical display simultaneously with the graphical data. The formats are specific to the event types so that a user can decide whether to continue viewing the graphical data and not respond to the event notifier, or terminate the graphical data being displayed and respond to the event. Examples of events include an alarm from a locally stored user calendar, an incoming phone call, an SMS message, and

an email. A computer program and a device are also detailed.
MainClaim: A method comprising: displaying graphical data on a graphical display of a portable electronic device; responsive to an occurrence of an event that is independent of the graphical data, automatically selecting a corresponding event type from a list comprising a plurality of different event types each having an associated display format, the list being stored in a memory of the portable electronic device; and displaying the graphical data on the graphical display simultaneously with a notifier of the occurrence of the event using the display format associated with the selected corresponding event type; wherein the plurality of different event types comprise at least one of: an incoming call event, in which the display format associated with the incoming call event comprises displaying a calling party identifier for the case where a calling party number of the incoming call event is matched to the calling party identifier in the memory; an incoming message event, in which the display format associated with the incoming message event comprises displaying at least a portion of text specific to the message; and an alarm event of a user calendar, in which the display format associated with the alarm event comprises displaying a text for the alarm event and the user calendar is stored in the memory.

2009/0177617	Systems, methods and apparatus for providing unread message alerts	Apple Inc.	Lee; Michael M.	707	G06F	20080103	3	95%	☐

Abstract: The present invention includes systems, apparatus and methods for providing message alerts to a user prior to that user communicating with a second party. The user may desire to communicate with a second party by sending a text-based message or by speaking to them through a communications device, such as a cellular phone. Prior to sending the message or speaking with the second party, the device can provide the user with message alerts, the option to review alert content, and/or to view the alert content itself. The message alerts and alert content can be notifications and/or previews of opened/unopened e-mail messages, voicemail messages, text messages, etc. Alert content can be located based on, for example, contact information of the person with whom the user desires to communicate, subject line data of a text-based message, main body data of a text based message, etc.
MainClaim: A method of providing a message alert to a user prior to the user communicating with a second party, comprising:receiving a request to facilitate communications with the second party;locating at least one keyterm based on the request;searching for alert content associated with the at least one keyterm; andproviding the message alert to the user if alert content is found.

2009/0170480	Systems and methods for intelligent and customizable communications between devices	Apple Inc.	Lee; Michael M.	455	H04M	20071228	3	93%	☐

Abstract: Systems and methods for providing a communications system are provided. The communications system can provide intelligent communications between devices, in which the system can identify appropriate communication modes for incoming communications requests based on a user's preferences and availability. The communications system can determine whether a user is participating in an activity. In response to determining that a user is participating in an activity, the communications system can automatically identify one or more preferred communication modes that are available to the user. In some embodiments of the present invention, the communications system can configure a communications device to send a message back to a contact's device if the communication mode of an incoming communications request is not preferred. The communications system can also allow a user to customize information that is displayed to a subset of the user's contacts.
MainClaim: A method of providing communication modes of a user comprising:identifying an activity in which the user is participating based on one or more categories of data;identifying one or more preferred communication modes for the user based on the activity;establishing a communications channel with a contact's device; andnotifying the contact's device of at least one preferred communication mode via the communications channel.

2009/0170492	User-programmed automated communications	Apple Inc.	Lee; Michael M.	455	H04M	20071228	5	92%	☐

Abstract: A communications device may be programmed to initiate a communications operation when a particular condition is met. The user may set any suitable condition, including for example a date and time, location, event, received or sent communications operation, or any other suitable criteria. The user may select any suitable contact method for the communications operation, including for example telephone, voicemail, email, text message, chatting, fax, or any other suitable method.
MainClaim: A method for scheduling a communications operation to be performed by a communications device, the method comprising:receiving a condition for performing the scheduled communications operation;determining whether the condition is satisfied; andperforming the scheduled communications operation in response to determining that the received condition is satisfied.

6,553,240	Print option for WAP browsers	Nokia Corporation	Dervarics; Gergely	455	H04B	19991230	0	100%	☐

Abstract: The WAP browser in a mobile phone is adapted to permit printing of WML data received and interpreted by the WAP browser. The mobile phone has control circuitry, including a processing unit, a memory connected to the processing unit, and a display. The WAP browser is adapted to interpret received Wireless Markup Language (WML) data and display it on the display. The WAP browser includes a print option which, when selected by the user of the wireless communication device, causes the WML data to be printed.
MainClaim: A mobile phone comprising:

control circuitry, including a processing unit;

a memory connected to the processing unit;

a display; and

a Wireless Application Protocol (WAP) browser adapted to interpret received Wireless Markup Language (WML) data and display said WML data on said display,

wherein said WAP browser includes a print option which, when selected by the user of the mobile phone, causes said WML data to be printed.

2009/0209240	AUTO MESSAGING TO CURRENTLY CONNECTED CALLER	APPLE INC.	Mahowald; Peter Henry	455	H04M	20080214	3	93%	☐

Abstract: A messaging application and a telephony application can be activated on a mobile device for sending messages to a connected party while a telephone connection is established between the mobile device and the connected party. A user can compose a message or send a file from the mobile device to the connected party based on the caller details associated with the connected party.

MainClaim: A method, comprising:presenting a user interface on a mobile device having telephony and messaging capability, the user interface including a user interface element which is operable for specifying an option to send information to one or more call participants during a telephone call;detecting caller details associated with the one or more call participants;receiving user input specifying the information;receiving user input selecting the option to send the information; andsending the information to the one or more call participants during a telephone call using the caller details.

2009/0176517	Multiple Recipient Messaging Service for Mobile Device	APPLE INC.	Christie; Gregory N. | van Os; Marcel MWA | Lemay; Steve | Doll; Evan | Santamaria; Justin	455	H04Q	20080106	3	92%	☐

Abstract: A messaging application can be activated on a mobile device for determining whether messages were successfully transmitted from the mobile device to one or more specified recipients. The messaging application provides a user interface that allows the user to resend the message to those recipients who did not receive the message or to cancel the message. In one implementation, the state of input text composed for failed messages is retained so that the user does not have to retype the entire message before the message is retransmitted.

MainClaim: A method, comprising:detecting a failed message transmission to a recipient originating on a mobile device;presenting a user interface on the mobile device, including a user interface element which is operable for specifying an option to resend the message to the recipient;receiving user input specifying the resend option; andresending the message to the recipient.

6,965,770	Dynamic content delivery responsive to user requests	Nokia Corporation	Walsh; Rod | Häkkinen; Juha | Hämäläinen; Matti | Väänänen; Mauri | Tähti; Ari | Nevakivi; Kristiina	455	H04Q	20010913	0	100%	☐

Abstract: A method and system for establishing a dynamic content delivery system (DCDS) is disclosed. In one embodiment, a Bluetooth enabled mobile communications unit is used to communicate with a server in order to make a request for the delivery of specific content, such as a song, video, or the like, to a separate output device, such as a loudspeaker, a display screen, or the like. In another embodiment the content is delivered back to the requesting mobile communications device. In some embodiments, hybrid networks may be used for requesting and delivering content. A narrowband, bi-directional, unicast network may be used for requesting content and acknowledging the requests, while a broadband, unidirectional, multicast network may be used to deliver the requested content to the requesting client device. The order in which the content is delivered may be modified by user requests according to a predetermined algorithm.

MainClaim: A method for delivering content, comprising the steps of:

(i) a content server sending a list of selectable content items to a mobile terminal over a wireless network;

(ii) receiving a request at the content server from the mobile terminal, wherein the request corresponds to a user-selected content item from the list of selectable content items; and

(iii) responsive to receiving the request, the content server playing a first content item through an output device separate from the mobile terminal.

2010/0064053	RADIO WITH PERSONAL DJ	Apple Inc.	Bull; William | Rottler; Ben	709	G06F	20080909	3	93%	☐

Abstract: An electronic device, such as a media player or portable media device, can provide enhanced playback of personalized or synthesized content in addition to streaming content. During playback of one or more media items associated with streaming content, content generated or synthesized from data or other information obtained from data sources can be personalized to be integrated with the one or more media items being streamed or broadcast. Personalized or synthesized content may be generated dynamically based on a determination that personalized content is also to be played back with the streaming content. A user may configure data feeds associated with weather information, horoscope, calendar, caller-ID, voicemail, or the like, and have content specifically generated to represented the data feeds interjected into a program or between songs at random or scheduled intervals.

MainClaim: A method for presenting streaming content by a media player configured to provide playback of one or more media items in the streaming content, the method comprising:receiving a playback request to play the streaming content;playing a portion of a media item associated with the streaming content;determining whether personalized content is also to be played with the streaming content, the personalized content generated based on information obtained from a data source; andplaying the personalized content based on a determination that personalized content is also to be played with the streaming content.

2009/0171812	Media streams and media store	Apple Inc.	Fadell; Anthony	705	G06Q	20080314	3	92%	☐

Abstract: This invention is directed to providing access to one or more media streams in exchange for purchasing articles or items that may be related to at least one of the media streams. In some embodiments, the item purchased may include a media item related to a media item provided as part of a particular media stream. For example, a user may be provided access to an Internet radio station in exchange for purchasing a song. The song may include any song available from a store, a song transmitted by the Internet radio station, or a song related to a song transmitted by the Internet radio station. Each media item purchased may provide the user with a particular amount of media stream credit that may be used to access media streams. In some embodiments, different purchased media items may provide the user with the same or different amounts of credit.
MainClaim: A method for providing a user with access to a media stream, comprising:receiving a user selection of a media stream;determining whether the user is authorized to access the selected media stream;in response to determining that the user is not authorized to access the media stream, prompting the user to purchase a media item in exchange for access to the media stream;receiving a user purchase of a media item; andproviding the user with access to the selected media stream.

2010/0125351	Ordering A Playlist Based on Media Popularity	Apple Inc.	Davydov; Anton	700	G06F	20081114	3	92%	☐

Abstract: This is directed to systems and methods for ordering a playlist of media items. An existing playlist can include media sharing some characteristics, where some of the media items are unfamiliar to the user. To provide the user with a sense of the unfamiliar media items, the electronic device can order the playlist media items based on a familiarity or popularity measure. For example, the electronic device can determine the chart rankings of each media item in the playlist, and play back the media items in the order of chart ranking. This may allow a user to first listen or watch the most familiar or popular media items and get a sense for the less familiar or popular media items in the playlist.
MainClaim: A method for ordering a playlist of media items, comprising:receiving a user selection of a plurality of media items;retrieving for each of the plurality of media items a familiarity value indicative of how familiar each of the plurality of items is from a remote familiarity index; andordering the plurality of media items based on the retrieved familiarity value.

7,109,848	Applications and methods for providing a reminder or an alert to a digital media capture device	Nokia Corporation	Schybergson; Olof	340	G08B	20031117	0	100%	☐

Abstract: A notification system that reminds and/or alerts a digital media capture device that a media event that warrants capture is imminent. The notification system is implemented in conjunction with a digital planner such that event reminders are placed in the digital planner of a digital device and alerts are then sent to an associated digital media capture device proximate to the occurrence of the media event. The alerts may be sent to internal digital media capture devices or the alerts may be sent to external digital media capture devices that are remote from the device on which the digital planner is implemented.
MainClaim: An application for communicating event reminders to a digital device, the application comprising a computer-readable storage medium having computer-readable program instructions embodied in the medium, the computer-readable program instructions comprising: first instructions for generating a calendar view that represents time in calendar format, and for associating events with respective periods of time; and second instructions for generating an event reminder that is displayed in the calendar view, and for providing communication of the event reminder to the digital device prior to the event wherein the digital device comprises a media capture device adapted to capture media from a location of the event.

2010/0064053	RADIO WITH PERSONAL DJ	Apple Inc.	Bull; William | Rottler; Ben	709	G06F	20080909	3	92%	☐

Abstract: An electronic device, such as a media player or portable media device, can provide enhanced playback of personalized or synthesized content in addition to streaming content. During playback of one or more media items associated with streaming content, content generated or synthesized from data or other information obtained from data sources can be personalized to be integrated with the one or more media items being streamed or broadcast. Personalized or synthesized content may be generated dynamically based on a determination that personalized content is also to be played back with the streaming content. A user may configure data feeds associated with weather information, horoscope, calendar, caller-ID, voicemail, or the like, and have content specifically generated to represented the data feeds interjected into a program or between songs at random or scheduled intervals.
MainClaim: A method for presenting streaming content by a media player configured to provide playback of one or more media items in the streaming content, the method comprising:receiving a playback request to play the streaming content;playing a portion of a media item associated with the streaming content;determining whether personalized content is also to be played with the streaming content, the personalized content generated based on information obtained from a data source; andplaying the personalized content based on a determination that personalized content is also to be played with the streaming content.

7,305,242	System, apparatus, and method for facilitating link selection on	Nokia Corporation	Zakharia; Sany | Eiden; Niko	455	H04Q	20020717	0	100%	☐

	electronic devices								

Abstract: A system, apparatus, and method for facilitating selection of selectable links presented on a display using an enhanced hovering technique. At least one snap area associated with a link is defined, where the snap area includes a region extending beyond the boundaries of the particular link. Movement of a cursor is facilitated to allow a user to move the cursor over the snap area of the particular link when presented on the display. One or more characteristics of the particular link are modified when the cursor is hovering within the snap area of the particular link, thereby indicating that the link may be selected by the user.
MainClaim: A method for facilitating user selection of links presented on a display, comprising: defining a plurality of user-configurable snap areas associated with a target link, wherein the snap areas each include a configurable region extending beyond the boundaries of the target link, wherein the regions are of different sizes for each of the plurality of snap areas; facilitating movement of a graphical selection tool over at least one snap area of the plurality of snap areas; modifying one or more characteristics of the target link when the graphical selection tool is hovering within the at least one snap area of the target link, thereby indicating that the target link may be selected; and activating one of the plurality of snap areas based on a number of times in which the target link has been selected by a user.

2010/0011304	ADDING A CONTACT TO A HOME SCREEN	APPLE INC.	van Os; Marcel MWA	715	G06F	20080709	2	96%	☐

Abstract: An icon can be created for a contact (e.g., an individual(s) or an entity) and presented on a user interface of a mobile device, such as a "home screen." The icon can be used to retrieve and display contact information. The icon can also be used to invoke one or more applications that are personalized to the contact. The icon can be modified to display information related to the contact. In one aspect, an icon associated with an entity can be temporarily displayed on the mobile device based on the proximity of the mobile device to the entity. The icon can be used to retrieve and display information related to the entity. Additionally, the icon can be removed from the display on the mobile device when the mobile device is no longer within a certain proximity of the entity.
MainClaim: A method comprising:displaying on a mobile device, content associated with a contact;receiving input to create an icon associated with the content;creating an icon based on the content; anddisplaying the icon on a user interface of the mobile device.

2009/0178006	Icon Creation on Mobile Device	APPLE INC.	Lemay; Steve | Omernick; Tim | Williamson; Richard	715	G06F	20080106	2	95%	☐

Abstract: An icon associated with content (e.g., webpage content) is created on a mobile device. In one implementation, the content is displayed on the mobile device and an indication is received to create an icon associated with the content. All or a portion of the content is rendered into the icon, and the icon is displayed on a user interface of the mobile device.
MainClaim: A method comprising:displaying content on a mobile device;receiving an indication to create an icon associated with the content;creating an icon based at least in part on a portion of the content; anddisplaying the icon on a user interface of the mobile device.

2009/0307105	User Interface for Application Management for a Mobile Device	APPLE INC.	Lemay; Steve | Kelly; Sean	705	G06F	20090115	2	94%	☐

Abstract: This specification describes technologies relating to user interfaces for mobile devices. In general, one aspect of the subject matter described in this specification can be embodied in methods that include the actions of receiving a touch input to access an application management interface on a mobile device; presenting an application management interface; receiving one or more inputs within the application management interface including an input to install a particular application; installing the selected application; and presenting the installed application.
MainClaim: A method comprising:receiving a touch input to access an application management interface on a mobile device;presenting an application management interface;receiving one or more inputs within the application management interface including an input to install a particular application;installing the selected application; andpresenting the installed application.

7,149,503	System and method for associating postmark information with digital content	Nokia Corporation	Aarnio; Ari | Tiainen; Ilkka | Rahnasto; Ilkka	455	H04M	20031223	0	100%	☐

Abstract: A system and method is provided for associating postmark information with digital content. Content is created or otherwise selected from available content selections. Information is received at the mobile device from a radio frequency (RF) transponder. The information may include postmark information to allow the mobile device to associate the postmark information with the content, or may include information to allow the mobile device to send a message to a network service to associate the postmark with created or selected content.
MainClaim: A method for creating postcards, comprising: receiving information at a mobile device from at least one transponder, wherein the information includes at least a transponder identifier (ID); creating a message including the transponder ID at the mobile device, and delivering the message to a network service; locating postmark information at the network service based on the transponder ID; and associating the postmark information with a content item to create a digital postcard; wherein the information received from the at least one transponder further includes a network address of the network service, and wherein delivering the message to the network service comprises delivering the message to the network address of the network service.

2010/0082490	Systems and methods for secure wireless transactions	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mayo; Sean A. | Nakajima; Taido	705	H04L	20080930	4	92%	☐

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Abstract: There is provided systems and methods for to conducting wireless transactions using portable electronic devices. Specifically, for example, a method of conducting a wireless transaction is provided that includes initiating a wireless transaction using a short range wireless communication system of a portable electronic device. The method also includes obtaining security information via at least one secondary system of the portable electronic device and utilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.
MainClaim: A method of conducting a wireless transaction, comprising:initiating a wireless transaction using a short range wireless communication system of a portable electronic device;obtaining security information via at least one secondary system of the portable electronic device; andutilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.

7,668,932	Method, system, apparatus and computer program product for enabling the pre-download of media objects	Nokia Corporation	Cugi; Guido | Bremer; Oliver	709	G06F	20050630	0	100%	☐

Abstract: A method, computer program product, electronic device and system for enabling the pre-download of media objects are provided. In particular, means can be provided by which Download Descriptor can be maintained alongside a pre-downloaded media object associated with the Download Descriptor until the pre-downloaded media object is consumed.
MainClaim: A method comprising: gaining access to a download descriptor associated with a media object by an electronic device, wherein the download descriptor comprises metadata relative to the media object, the metadata comprising a description of one or more of name, vendor, size, type, description, usage requirements, rendering requirements, download instructions, installation information, or download time of the media object; determining, at the electronic device, whether the electronic device is capable of downloading the media object from a remote device based at least in part on information included in the download descriptor; pre-downloading the media object, when it is determined that the electronic device is capable; creating with a download manager, in response to pre-downloading the media object, a mapping between the download descriptor and the pre-downloaded media object in a database stored on the electronic device; using the mapping to retrieve the download descriptor, in response to the download manager receiving a selection of the pre-downloaded media object; consuming the pre-downloaded media object using the download descriptor; and removing, with the download manager, the mapping from the database once the pre-downloaded media object has been consumed.

2009/0063660	SYNCHRONIZATION AND TRANSFER OF DIGITAL MEDIA ITEMS	APPLE INC.	Fleischman; David | Wysocki; Christopher R. | Mirrashidi; Payam | Kelly; Sean | Pisula; Charles | Ward; Alan | Meldrum; Colin | Gautier; Patrice | Robbin; Jeffrey	709	G06F	20080904	3	94%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for synchronizing and transferring digital media items. One or more media items are received, from a network operating environment, at a first device. A first media database on the first device, including metadata associated with the media items, is synchronized with a second media database on a second device. The one or more media items are moved from the first device to the second device. The one or more media items are copied from the second device to the first device.
MainClaim: A method, comprising:receiving, from a network operating environment, one or more media items at a first device;synchronizing a first media database on the first device, including metadata associated with the media items, with a second media database on a second device;moving the one or more media items from the first device to the second device; andcopying the one or more media items from the second device to the first device.

6,801,793	Systems and methods for presenting and/or converting messages	Nokia Corporation	Aarnio; Ari | Dipanshu; Sharma	455	H04M	20000602	0	100%	☐

Abstract: A method for receiving a message and outputting the portion of the message that is within the capabilities of the receiver of a wireless device. For a received text message, some or all of the message is converted to voice-based content, depending upon the user's preference or upon the capability of the wireless device's display. When the display of the wireless device is too small to accommodate a large text-based message, a software module converts the text-based content to voice-based content. The voice-based content is then output to a speaker in the wireless device. This alleviates the need for the user to manipulate the wireless device when the entire text-based message is not viewable at one time on the display of the wireless device. For received messages of more than one type of content, only the portions of the message that are within the capabilities of the receiver are outputted, or converted to another type of content if possible.
MainClaim: A system for transporting data to a mobile terminal having an output capability which is capable of outputting more than one form of data and which is in wireless communication with a wireless network, the system comprising:

a server connected to the wireless network said server capable of transmitting to a mobile terminal a message having more than one form of data, said message comprising graphical content and one of text and voice content; and

means for converting the message for output on said mobile terminal so that said more than one form of data is available for simultaneous output on said mobile terminal, said converting means located in said mobile terminal and comprising a software module located in the mobile terminal and comprising instructions for segregating said graphical content from said one of text and voice content in said message for simultaneous output of the graphical content and said one of text and voice content on said mobile terminal.

7,643,789	Multimedia data transfer for a personal communication device	Apple Inc.	Fadell; Anthony M.	455	H04B	20090327	2	93%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: A consumer product suitable for sending multimedia data to at least another personal communication device concurrently with a active communication over a voice channel, comprising: a memory device arranged to store at least some of the multimedia data; a display coupled to the memory device suitable for displaying a user interface for assisting in selecting the multimedia data to be sent from the consumer product to the at least another consumer product; a wireless interface arranged to establish the voice channel between the consumer product and the at least another personal communication device; an audio input device for receiving a user's vocal input; and a processor arranged to receive a user selection event from the user interface and the user's vocal input, vocalize the multimedia data selected by the user and the user's vocal input, and pass the vocalized multimedia data and the vocalized user's vocal input to the at least another personal communication device using only the voice channel, wherein the processor is further arranged to generate a prompt indicating a manner selected by the user of the consumer product in which the at least another personal communication device processes the vocalized multimedia data received from the consumer product, wherein the prompt is passed to the at least another personal communication device with the vocalized multimedia data.

2010/0068991	MULTIMEDIA DATA TRANSFER FOR A PERSONAL COMMUNICATION DEVICE	APPLE INC.	Fadell; Anthony M.	455	H04H	20091123	2	92%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: A method for processing multimedia data at a second personal communication device, the multimedia data vocalized at a first personal communication device, comprising:receiving first type multimedia data vocalized by the first personal communication device and an indication of a required manner of processing of the first type vocalized multimedia data together over a voice channel at the second personal communication device, wherein the second personal communication device processes the first type vocalized multimedia data only in accordance with the required manner of processing, wherein the required manner of processing is selected by a user of the first personal communication device, and wherein the required manner of processing is not consistent with the first type of multimedia data.

2009/0186642	MULTIMEDIA DATA TRANSFER FOR A PERSONAL COMMUNICATION DEVICE	Apple Inc.	FADELL; Anthony M.	455	H04W	20090327	3	92%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: A method for sending multimedia data from a first personal communication device to at least another personal communication device over a voice channel, comprising:at the first personal communication device, selecting multimedia data by a user;vocalizing the selected multimedia data; andpassing the vocalized multimedia data from the first portable communication device to the second portable communication device over the voice channel concurrent with another active communication.

7,623,824	Broadcast media bookmarks	Nokia Corporation	Anttila; Akseli | Makipaa; Mikko | Othman; Jorgen	455	H04H	20021216	0	100%	☐

Abstract: A system and method is provided for permitting a mobile device to connect to a broadcast station web site and to receive a broadcast station broadcast in response to selection of a bookmark. Selection of the bookmark results in a tuner on the mobile device being tuned to receive a broadcast while the mobile device substantially simultaneously connects to a web site for the broadcast station. The bookmark may be programmed by the user and may represent different broadcast stations according to parameters. Bookmarks may be displayed to the user based on geographical location information. Bookmarks may be created by scanning for available broadcasts at a geographical location. RDS information may supplement broadcast information and may be sent to the mobile device via CBS messages.
MainClaim: A method comprising: receiving at a device a message comprising combined functionality bookmark information, the combined functionality bookmark information comprising identifiers for accessing a broadcast media and an associated website; storing the combined functionality bookmark information in a memory of the device; in response to receiving a user selection of a bookmark associated with the bookmark information, performing substantially simultaneously: setting a receiver on the device to receive the broadcast media from a broadcast media station

according to the bookmark information associated with the bookmark; and opening on the device an interactive data communication channel for interacting with the broadcast media station according to the bookmark information associated with the bookmark.

2010/0075593	MEDIA DEVICE WITH ENHANCED DATA RETRIEVAL FEATURE	Apple Inc.	Lee; Jeffrey | Ingrassia, JR.; Michael Ignazio	455	H04H	20080924	5	93%	☐

Abstract: A personal media device including a broadcast receiver that receives broadcast media and broadcast media data from a broadcast source where the broadcast media data includes a media identifier associated with the broadcast media. The media device also includes a data transceiver that sends a retrieval request to a media server for enhanced media data where the retrieval request includes the media identifier and receives the enhanced media data via a wireless data channel. The media device further includes a processor that performs a media device operation in response to the received enhanced media data.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media and broadcast media data from a broadcast source, the broadcast media data including a media identifier associated with the broadcast media,a data transceiver for i) sending a retrieval request to a media server for enhanced media data, the retrieval request including the media identifier and ii) receiving the enhanced media data via a wireless data channel, anda processor in communication with the data transceiver for performing a media device operation in response to the received enhanced media data.

2010/0075695	SYSTEMS, METHODS, AND DEVICES FOR RETRIEVING LOCAL BROADCAST SOURCE PRESETS	Apple Inc.	Haughay, JR.; Allen P. | Ingrassia, JR.; Michael Ignazio | Lee; Jeffrey	455	H04W	20080924	3	93%	☐

Abstract: A media device including a broadcast receiver that receives broadcast media and a location sensor that determines the location of the media device and generates media device location data. The media device includes a data store that stores at least one data network address for a media data server where the media data server includes a list of broadcast source settings. The data store also stores a preset list of broadcast source settings. The media device also includes a transceiver for: i) sending the media device location data to the media data server and ii) retrieving a location-based list of broadcast source settings associated with the location of the media device. The media device further includes a processor that compares the preset list with the location-based list and determines a local preset list from the retrieved location-based settings that match the preset settings.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media,a location sensor for determining the location of the media device and generating media device location data, anda data store for storing: i) at least one data network address for a media data server, the media data server including a list of broadcast source settings and ii) a preset list of broadcast source settings,a transceiver for: i) sending the media device location data to the media data server and ii) retrieving a location-based list of broadcast source settings associated with the location of the media device, anda processor for: i) comparing the preset list with the location-based list and ii) determining a local preset list from the retrieved location-based settings that match the preset settings.

2010/0075616	SYSTEMS, METHODS, AND DEVICES FOR ASSOCIATING A CONTACT IDENTIFIER WITH A BROADCAST SOURCE	Apple Inc.	Haughay, JR.; Allen P. | Perry; Ryan	455	H04B	20080924	1	92%	☐

Abstract: A media device including a broadcast receiver that receives broadcast media from a plurality of broadcast sources where the broadcast receiver is tunable to a first broadcast source. The media device also includes a data store that stores a list of contact identifiers where each contact identifier is associated with a broadcast source. The media device includes a user interface that: i) provides a prompt to a user to enable the user to initiate contact with the first broadcast source, and ii) receives a user indication to initiate contact with the first broadcast source. The media device further includes a transceiver that initiates the contact with the first broadcast source by sending a communications session request via a communications network to the first broadcast source that includes a contact identifier associated with the first broadcast source.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media from a plurality of broadcast sources, the broadcast receiver being tunable to a first broadcast source,a data store for storing a list of contact identifiers, each contact identifier being associated with one of the plurality of broadcast sources,a user interface for: i) providing a prompt to a user to enable the user to initiate contact with the first broadcast source, and ii) receiving a user indication to initiate contact with the first broadcast source, anda transceiver for initiating the contact with the first broadcast source by sending a communications session request via a communications network to the first broadcast source including a contact identifier associated with the first broadcast source.

7,117,020	Systems and methods for presenting and/or converting messages	Nokia Corporation	Aarnio; Ari | Dipanshu; Sharma	455	H04M	20040817	0	100%	☐

Abstract: For a text message received by a mobile terminal, some or all of the message is converted to voice-based content, depending upon the user's preference or upon the capability of the wireless device's display. When the display of the mobile terminal is too small to accommodate a large text-based message, a software module converts the text-based content to voice-based content. The voice-based content is then output to a speaker in the wireless device. For received messages of more than one type of content, only the portions of the message that are within the capabilities of the receiver are outputted, or converted to another type of content if possible.

MainClaim: A mobile terminal adapted for outputting more than one form of data comprising: a receiver for receiving a message having more than one form of data, said message comprising graphical content and one of text and voice content; and a converter for converting the message for output on said mobile terminal so that the more than one form of data is available for simultaneous output on said mobile terminal, the converter comprising a software module in said mobile terminal, the software module having instructions for segregating the graphical content from said one of text and voice content in the message for simultaneous output of the graphical content and said one of text and voice content on the mobile terminal.

7,643,789	Multimedia data transfer for a personal communication device	Apple Inc.	Fadell; Anthony M.	455	H04B	20090327	2	93%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: A consumer product suitable for sending multimedia data to at least another personal communication device concurrently with a active communication over a voice channel, comprising: a memory device arranged to store at least some of the multimedia data; a display coupled to the memory device suitable for displaying a user interface for assisting in selecting the multimedia data to be sent from the consumer product to the at least another consumer product; a wireless interface arranged to establish the voice channel between the consumer product and the at least another personal communication device; an audio input device for receiving a user's vocal input; and a processor arranged to receive a user selection event from the user interface and the user's vocal input, vocalize the multimedia data selected by the user and the user's vocal input, and pass the vocalized multimedia data and the vocalized user's vocal input to the at least another personal communication device using only the voice channel, wherein the processor is further arranged to generate a prompt indicating a manner selected by the user of the consumer product in which the at least another personal communication device processes the vocalized multimedia data received from the consumer product, wherein the prompt is passed to the at least another personal communication device with the vocalized multimedia data.

2010/0068991	MULTIMEDIA DATA TRANSFER FOR A PERSONAL COMMUNICATION DEVICE	APPLE INC.	Fadell; Anthony M.	455	H04H	20091123	2	93%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: A method for processing multimedia data at a second personal communication device, the multimedia data vocalized at a first personal communication device, comprising:receiving first type multimedia data vocalized by the first personal communication device and an indication of a required manner of processing of the first type vocalized multimedia data together over a voice channel at the second personal communication device, wherein the second personal communication device processes the first type vocalized multimedia data only in accordance with the required manner of processing, wherein the required manner of processing is selected by a user of the first personal communication device, and wherein the required manner of processing is not consistent with the first type of multimedia data.

2009/0186642	MULTIMEDIA DATA TRANSFER FOR A PERSONAL COMMUNICATION DEVICE	Apple Inc.	FADELL; Anthony M.	455	H04W	20090327	3	93%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: A method for sending multimedia data from a first personal communication device to at least another personal communication device over a voice channel, comprising:at the first personal communication device, selecting multimedia data by a user;vocalizing the selected multimedia data; andpassing the vocalized multimedia data from the first portable communication device to the second portable communication device over the voice channel concurrent with another active communication.

7,676,802	System, and associated method, for downloading an application	Nokia Corporation	Mittal; Gaurav	717	G06F	20030723	0	100%	☐

Abstract: A method for facilitating the downloading of an application from a server computer to a client device, whereby the client device generates to the server computer an initiation request for information describing available applications. In response to receipt of the initiation request, the server computer retrieves, for each available application, information describing the respective application, and a link to an application descriptor for the respective application. The server computer transmits the information and link to the client device, which in turn displays the information and stores the link. When the user selects an application, the link for the selected application is recalled and is reached on the server computer for retrieval of the application descriptor. From the application descriptor, the client device may determine whether the application fits the device profile and, hence, whether to download the application.
MainClaim: A method, comprising: receiving from a client device an initiation request for information describing

available application choices, the initiation request being initiated via a single user interface; responsive to the initiation request, retrieving for each available application information describing a respective application and a link to an application descriptor for the respective application, the application descriptor including attributes to allow a determination by the client device as to whether the respective application is suitable for the client device; transmitting from at least one server computer the application information and the link to the client device, wherein the application information includes information to be displayed at the client device, and the link is stored in a memory of the client device and not to be displayed at the client device; displaying at the client device the information included in the transmitted application information; initiating selection of an application contained in the displayed information; recalling from the memory a link corresponding to the selected application; reaching on the sewer computer an application descriptor via the link corresponding to the selected application; retrieving by the server computer the application descriptor; and transmitting by the server computer the application descriptor to the client device.

2010/0088387	Email Notification Proxy	APPLE INC.	Calamera; Pablo M.	709	G06F	20081003	3	94%	☐

Abstract: Among other things, techniques and systems are disclosed for exchanging notifications and data between a client device and a server. A system includes a server configured to maintain a first persistent connection to a mobile electronic device. The first persistent connection is configured to push at least service specific data to the mobile electronic device. The server is further configured to maintain a second persistent connection to a third party server. The second persistent connection is configured to monitor for availability, at the third party server, of new data associated with the mobile electronic device. The server is also configured to notify the mobile electronic device via the first persistent connection when new data becomes available at the third party server.
MainClaim: A system comprising:a server configured to:maintain a first persistent connection to a mobile electronic device, wherein the first persistent connection is configured to push at least service specific data to the mobile electronic device;maintain a second persistent connection to a third party server, wherein the second persistent connection is configured to monitor for availability, at the third party server, of new data associated with the mobile electronic device; andnotify the mobile electronic device via the first persistent connection when new data associated with the mobile electronic device becomes available at the third party server.

2009/0063660	SYNCHRONIZATION AND TRANSFER OF DIGITAL MEDIA ITEMS	APPLE INC.	Fleischman; David | Wysocki; Christopher R. | Mirrashidi; Payam | Kelly; Sean | Pisula; Charles | Ward; Alan | Meldrum; Colin | Gautier; Patrice | Robbin; Jeffrey	709	G06F	20080904	3	92%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for synchronizing and transferring digital media items. One or more media items are received, from a network operating environment, at a first device. A first media database on the first device, including metadata associated with the media items, is synchronized with a second media database on a second device. The one or more media items are moved from the first device to the second device. The one or more media items are copied from the second device to the first device.
MainClaim: A method, comprising:receiving, from a network operating environment, one or more media items at a first device;synchronizing a first media database on the first device, including metadata associated with the media items, with a second media database on a second device;moving the one or more media items from the first device to the second device; andcopying the one or more media items from the second device to the first device.

2010/0122327	SECURE AUTHENTICATION FOR ACCESSING REMOTE RESOURCES	APPLE INC.	Linecker; Anton Franz | Kossovsky; Yuval | Libich; Martin	726	H04L	20081110	3	92%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for secure authentication for accessing remote resources are disclosed. In some implementations, a user is authenticated for a first time on an interface using a first communications channel; the user is authenticated a second time on the interface using a second communications channel; access privileges are determined based on authenticating the user for the second time; and a random Uniform Resource Locator (URL) is generated based on the access privileges, where the random URL is single-use and indirectly associated with a requested resource.
MainClaim: A method comprising:receiving a first authentication factor from an interface using a first communications channel;determining access privileges based on the first authentication factor;generating a first random Uniform Resource Locator (URL) and a first resource based on the access privileges, the first resource being identified by the first random URL and configured to receive a second authentication factor, and the first random URL being single-use;providing the first resource to the interface using the first communications channel; andproviding the second authentication factor to the interface using a second communications channel.

6,907,568	Tangible icon representing network objects	Nokia Corporation	Meyers; Stephan	715	G09G	20010409	0	100%	☐

Abstract: A tangible icon is permanently encoded with a URL of a first network object. Links ("shortcuts") to other network objects are assigned as the contents of the first network object. A person in possession of the tangible icon can gain access to the other network objects without having to remember or enter their URLs, but need only present the physical icon to a reader. The system and method uses the URI encoded on the tangible icon to access the network object and to resolve the links contained therein to provide the contents of the linked objects. The number and size of the other network objects the user can access are virtually unlimited. The user gains access to the current version of an object.
MainClaim: A method of providing access to objects on a computer network comprising the steps of:

initializing a phicon, said phicon comprising a machine-readable tag having a resource identifier encoded thereon, said resource identifier identifying a memory location at a provider server, said initializing step comprising the sub-steps of:

presenting the phicon to a phicon-reading appliance;

contacting the provider server using the resource identifier read from the phicon by the phicon-reading appliance;

creating a network object at the memory location identified by the resource identifier;

placing at least one pointer in the created network object, said at least one pointer identifying at least one data object, whereby the created network object can provide access to a plurality of data objects having arbitrary sizes; and

accessing the at least one data object using said initialized phicon, said accessing step comprising the sub-steps of:

presenting, by an accessing user, the phicon to the phicon-reading appliance;

contacting the provider server using the resource identifier read from the phicon by the phicon-reading appliance; and

presenting to the accessing user the at least one data object identified by the at least one pointer, whereby the accessing user may interact with the at least one data object identified by the at least one pointer.

2009/0177662	ABSTRACTION FOR REPRESENTING AN OBJECT IRRESPECTIVE OF CHARACTERISTICS OF THE OBJECT	Apple Inc.	Ryder; Scott	707	G06F	20080930	1	95%	☐

Abstract: Methods and systems for providing easy access to information and sharing are provided. Embodiments of the present invention enable a host to grant access to published content to one or more users in a manner in which the user (s) can scan small portions of information to decide which information is desired. The embodiments described herein enable, for example, a user to see a library of content that is larger than the storage capacity of the computing unit used by the user. The sharing of information is also secured through the use of auto-lock keys and the creation of abstract identities for the host and each user.
MainClaim: A method for organizing data that can be accessed via a plurality of devices comprising:a catalogue that stores cards related to data;a data unit that is directly accessible by an application that uses data in the data unit; anda framework that can replicate at least a portion of data stored in the data unit and distributed the replicated data.

2010/0083351	ACCESS CONTROL TO CONTENT PUBLISHED BY A HOST	Apple Inc.	Ryder; Scott	726	G06F	20080930	1	95%	☐

Abstract: Methods and systems for providing easy access to information and sharing are provided. Embodiments of the present invention enable a host to grant access to published content to one or more users in a manner in which the user (s) can scan small portions of information to decide which information is desired. The embodiments described herein enable, for example, a user to see a library of content that is larger than the storage capacity of the computing unit used by the user. The sharing of information is also secured through the use of auto-lock keys and the creation of abstract identities for the host and each user.
MainClaim: A system for providing access control to content published by a host comprising:a content storage system that stores content;a security manager that creates abstract identities for hosts and users, and creates unique auto-lock keys when a host grants access rights to at least one user, the security manager being capable of coupling the auto-lock keys to specific content upon request of the host; anda framework interface that communicates secured messages from a host to at least one user when the at least one user is provided access to content published by the host.

2010/0082680	METHODS AND SYSTEMS FOR PROVIDING EASY ACCESS TO INFORMATION AND FOR SHARING SERVICES	Apple Inc.	Ryder; Scott	707	G06F	20080930	1	95%	☐

Abstract: Methods and systems for providing easy access to information and sharing are provided. Embodiments of the present invention enable a host to grant access to published content to one or more users in a manner in which the user (s) can scan small portions of information to decide which information is desired. The embodiments described herein enable, for example, a user to see a library of content that is larger than the storage capacity of the computing unit used by the user. The sharing of information is also secured through the use of auto-lock keys and the creation of abstract identities for the host and each user.
MainClaim: A method for sharing information comprising:storing an asset in a manner in which it can be retrieved regardless of its location;creating a card having information about the asset;distributing the card to one or more authorized users; andenabling the one or more authorized users to utilize the asset based on information on the card.

7,661,075	User interface display for set-top box device	Nokia Corporation	Lahdesmaki; Petri	715	G06F	20030821	0	100%	☐

Abstract: User interface systems and methods are disclosed. The user interfaces include at least one focus pointer that allow a user to quickly access the elements contained in a plurality of folders. A fixed focus pointer selects one of a plurality of elements of a main folder in response to interaction of a user. A moveable focus pointer scrolls through a plurality of elements of the first subfolder to select a second subfolder in response to interaction of a user. The user interface may include additional folders and focus pointers.
MainClaim: An apparatus comprising: a processor programmed to generate a user interface comprising: a main folder configured to contain a plurality of elements; at least a first sequential subfolder configured to contain a plurality of elements linked to the main folder, the first sequential subfolder being displayed in the form of a carousel having more elements than are displayed at one time in a display region, wherein the carousel is displayed as a plurality of carousel elements that rotate around a carousel axis, wherein the carousel extends beyond a perimeter of the display region, and wherein a subset of the plurality of elements of the first sequential folder located on one side of the perimeter of the display region are displayed; a fixed focus pointer configured to select one of the plurality of elements of the main folder in response to interaction of a user; and at least one moveable focus pointer configured to scroll through the plurality of elements of the at least first sequential subfolder to select one of the plurality of elements in response to interaction of a user to cause presentation of a second sequential subfolder containing a second plurality of elements extending outward from the selected element in a direction different from a rotational direction of the selected element around the carousel axis.

2010/0052843	SYSTEMS AND METHODS FOR SAVING AND RESTORING SCENES IN A MULTIMEDIA SYSTEM	APPLE INC.	Cannistraro; Alan	340	G05B	20080902	3	92%	☐

Abstract: Systems and methods for saving and restoring scenes in a multimedia system with minimal configuration are provided. The techniques of the present invention can allow the states of the components in the multimedia system to be captured in a scene. Once the scene has been saved, the scene can be restored at a later time. A remote control system for recommending scenes by comparing states of components in the current scene with states of components in saved scenes is also provided. The remote control system can also recommend scenes based on usage patterns. Moreover, the remote control system can allow users to designate one or more saved scenes as favorite scenes.
MainClaim: A method for allowing a user to save states of components comprising:discovering at least one component operative to be controlled by an electronic device;receiving a state broadcast from the at least one component, wherein the state comprises software and hardware settings of the at least one component;detecting a user instruction to save the state; andsaving the state of the at least one component in response to detecting.

2010/0064255	CONTEXTUAL MENUS IN AN ELECTRONIC DEVICE	Apple Inc.	Rottler; Benjamin Andrew | Wood; Policarpo	715	G06F	20080905	3	92%	☐

Abstract: A system and method for displaying menus of selectable options to a user are provided. The menus may include options that are contextually related to a current mode of the device to provide relevant options to a user. The electronic device modes may include, for example, a media mode, a radio mode, a workout mode, a calendar or event mode, a clock mode, a stopwatch mode, or any other suitable mode. To further enhance a user's experience, the displayed menus may not cover the entirety of the screen such that a portion of the content associated with a current mode or application may be visible, thus providing context to the displayed options.
MainClaim: A method for displaying a menu with selectable contextual options using a portable electronic device, comprising:displaying non-selectable content associated with a current mode of an electronic device, wherein the current mode comprises at least one of media, recording, audio book, radio, workout, calendar, event, clock, and stopwatch modes;detecting the current mode;identifying at least one option associated only with the detected current mode;generating a menu comprising the identified at least one option; andoverlaying the generated menu on the displayed content associated with the identified current mode such that at least a portion of the content remains visible.

2007/0038941	Management of files in a personal communication device	Apple Computer, Inc.	Wysocki; Christopher R. | Wasko; Timothy | Robbin; Jeffrey L. | Jobs; Steve | Christie; Greg | Chaudhri; Imran	715	G06F	20051205	1	92%	☐

Abstract: Improved approaches for assisting a user interacting with a portable wireless communication device are disclosed. The improved approaches can provide a user interface for the portable wireless communication device that includes including a plurality of linked display screens and a plurality of physical keys.
MainClaim: A method of assisting user interaction with a personal portable wireless device by way of a hierarchically ordered user interface, comprising: displaying a first order user interface having a first list of user selectable items each of which points to at least one of a second list of user selectable items displayed on a corresponding second order user interface; receiving a user selection of one of the user selectable items from the first list; and automatically transitioning to and displaying the second order user interface based upon the selected one of the user selectable items from the first list, wherein each of the user selectable items in the second list points back to the corresponding one of the user selectable items in the first list and points forward to at least one of a user selectable items in a third list displayed on a corresponding third order user interface, and wherein each of the user selectable items in the second list are different from the first list of user selectable items.

7,636,586	Mobile communication terminal	Nokia Corporation	Maaniitty; Jussi	455	H04B	20051012	0	100%	☐

Abstract: It is presented a method for synchronizing theme parameters between a mobile terminal and a personal computer. The method comprises the steps of: detecting that a connection exists between the mobile terminal and the

personal computer; sending a signal from the mobile terminal, the signal comprising at least one theme parameter; and modifying theme settings in at least one program on the personal computer to modify its appearance to correspond to at least one of the at least one theme parameter.
MainClaim: A method for synchronizing theme parameters between a mobile terminal and a personal computer, said method comprising: detecting that a connection exists between said mobile terminal and said personal computer; sending a signal from said mobile terminal, said signal comprising at least one theme parameter; and modifying theme settings in at least one program on said personal computer to modify its appearance to correspond to at least one of said at least one theme parameter, wherein a theme is the appearance, including color and configuration, of material displayed on a screen area.

2009/0209240	AUTO MESSAGING TO CURRENTLY CONNECTED CALLER	APPLE INC.	Mahowald; Peter Henry	455	H04M	20080214	3	94%	☐

Abstract: A messaging application and a telephony application can be activated on a mobile device for sending messages to a connected party while a telephone connection is established between the mobile device and the connected party. A user can compose a message or send a file from the mobile device to the connected party based on the caller details associated with the connected party.
MainClaim: A method, comprising:presenting a user interface on a mobile device having telephony and messaging capability, the user interface including a user interface element which is operable for specifying an option to send information to one or more call participants during a telephone call;detecting caller details associated with the one or more call participants;receiving user input specifying the information;receiving user input selecting the option to send the information; andsending the information to the one or more call participants during a telephone call using the caller details.

2009/0176517	Multiple Recipient Messaging Service for Mobile Device	APPLE INC.	Christie; Gregory N. | van Os; Marcel MWA | Lemay; Steve | Doll; Evan | Santamaria; Justin	455	H04Q	20080106	3	93%	☐

Abstract: A messaging application can be activated on a mobile device for determining whether messages were successfully transmitted from the mobile device to one or more specified recipients. The messaging application provides a user interface that allows the user to resend the message to those recipients who did not receive the message or to cancel the message. In one implementation, the state of input text composed for failed messages is retained so that the user does not have to retype the entire message before the message is retransmitted.
MainClaim: A method, comprising:detecting a failed message transmission to a recipient originating on a mobile device;presenting a user interface on the mobile device, including a user interface element which is operable for specifying an option to resend the message to the recipient;receiving user input specifying the resend option; andresending the message to the recipient.

2009/0178006	Icon Creation on Mobile Device	APPLE INC.	Lemay; Steve | Omernick; Tim | Williamson; Richard	715	G06F	20080106	2	92%	☐

Abstract: An icon associated with content (e.g., webpage content) is created on a mobile device. In one implementation, the content is displayed on the mobile device and an indication is received to create an icon associated with the content. All or a portion of the content is rendered into the icon, and the icon is displayed on a user interface of the mobile device.
MainClaim: A method comprising:displaying content on a mobile device;receiving an indication to create an icon associated with the content;creating an icon based at least in part on a portion of the content; anddisplaying the icon on a user interface of the mobile device.

7,469,153	Mobile telecommunications device browser	Nokia Corporation	Montebovi; Franco	455	H04B	20010830	0	100%	☐

Abstract: A mobile, cellular telecommunications handset (MS1) has a browser to navigate between and provide a display (5) of data from different network addresses. A key (4b) on the device is operable in a first mode e.g. a relatively short press, to navigate between previously listed network addresses. The key is also operable in a second mode e.g. a relatively long press, to provide a selective display of only previously visited homepages so that the user can quickly select a homepage from the previously visited homepage display and navigate directly to the selected homepage.
MainClaim: An apparatus comprising a housing, a microphone, an earpiece, a display screen mounted in the housing, a plurality of keys mounted on the housing and individually depressible for performing telephony operations, radio circuitry, and a processor configured to provide a browser for navigating between different pages stored remotely of the apparatus and displaying information therefrom on the display screen, wherein an individual key of said plurality of keys is configured to operate in a first mode comprising a first depression sequence pattern of said individual key to navigate between previously visited pages and said individual key further being configured to operate in a second mode comprising a second depression sequence pattern of said individual key to provide a display of previously visited pages to permit the selection of a page from the display of previously visited pages and the navigation directly thereto.

2009/0005981	Integration of Map Services and User Applications in a Mobile Device	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	701	G01C	20080125	2	93%	☐

Abstract: A location is specified, e.g., a current location of a mobile device or a user-specified location. A representation

of the location is represented on a map displayed by the mobile device. A set of contacts having a corresponding address in proximity to the location is determined. A graphical representation of the set of contacts is provided on the map proximate to the one or more corresponding addresses. If the location is a current location of a mobile device, the map can be updated in response to the current location changing with a representation of an updated current location and a representation of an updated set of contacts.
MainClaim: A method comprising:providing a representation of a location on a map;determining a set of contacts having a corresponding address in proximity to the location, where a contact corresponds to contact information for an entity included in an address book and the contact information includes at least a name and an address associated with the entity; andproviding a graphical representation of the set of contacts on the map proximate to the one or more corresponding addresses.

7,599,689	System and method for bookmarking radio stations and associated internet addresses	Nokia Corporation	Makipaa; Mikko | Kopra; Toni | Madan; Hemant | Anttila; Akseli | Saarinen; Petteri J. | Heikkinen; Barbara | Beletski; Oleg	455	H04W	20020422	0	100%	☐

Abstract: A system and method is provided for permitting a data terminal to connect to a broadcast station web site and to receive a broadcast station broadcast in response to selection of a bookmark. Selection of the bookmark results in a tuner on the data terminal being tuned to receive a broadcast while the data terminal substantially simultaneously connects to a web site for the broadcast station. Broadcast frequency information and web site address information for the bookmark may be stored on the data terminal, or such information may be stored remotely, such as on a station id server in communication with the data terminal. The bookmark may be programmed by the user and may represent different broadcast stations according to parameters.
MainClaim: An apparatus comprising: a processor; and a storage medium configured with executable instructions that, if executed by the processor, cause the apparatus to: detect an operator input for selecting a bookmark stored in the storage medium; set up the apparatus to receive broadcast media associated with the bookmark from a broadcast media station; send a request to a broadcast station server via a data network for information related to the broadcast media station; send a request for a broadcast frequency to a station id server via the data network; and receive data indicative of the broadcast frequency; wherein setting up the apparatus and sending the request to the broadcast station server are both performed in response to the detection of the operator input for selecting the bookmark, and the data indicative of the broadcast frequency is received from the broadcast station server associated with the broadcast media station.

2010/0075593	MEDIA DEVICE WITH ENHANCED DATA RETRIEVAL FEATURE	Apple Inc.	Lee; Jeffrey | Ingrassia, JR.; Michael Ignazio	455	H04H	20080924	5	92%	☐

Abstract: A personal media device including a broadcast receiver that receives broadcast media and broadcast media data from a broadcast source where the broadcast media data includes a media identifier associated with the broadcast media. The media device also includes a data transceiver that sends a retrieval request to a media server for enhanced media data where the retrieval request includes the media identifier and receives the enhanced media data via a wireless data channel. The media device further includes a processor that performs a media device operation in response to the received enhanced media data.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media and broadcast media data from a broadcast source, the broadcast media data including a media identifier associated with the broadcast media,a data transceiver for i) sending a retrieval request to a media server for enhanced media data, the retrieval request including the media identifier and ii) receiving the enhanced media data via a wireless data channel, anda processor in communication with the data transceiver for performing a media device operation in response to the received enhanced media data.

2010/0075695	SYSTEMS, METHODS, AND DEVICES FOR RETRIEVING LOCAL BROADCAST SOURCE PRESETS	Apple Inc.	Haughay, JR.; Allen P. | Ingrassia, JR.; Michael Ignazio | Lee; Jeffrey	455	H04W	20080924	3	92%	☐

Abstract: A media device including a broadcast receiver that receives broadcast media and a location sensor that determines the location of the media device and generates media device location data. The media device includes a data store that stores at least one data network address for a media data server where the media data server includes a list of broadcast source settings. The data store also stores a preset list of broadcast source settings. The media device also includes a transceiver for: i) sending the media device location data to the media data server and ii) retrieving a location-based list of broadcast source settings associated with the location of the media device. The media device further includes a processor that compares the preset list with the location-based list and determines a local preset list from the retrieved location-based settings that match the preset settings.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media,a location sensor for determining the location of the media device and generating media device location data, anda data store for storing: i) at least one data network address for a media data server, the media data server including a list of broadcast source settings and ii) a preset list of broadcast source settings,a transceiver for: i) sending the media device location data to the media data server and ii) retrieving a location-based list of broadcast source settings associated with the location of the media device, anda processor for: i) comparing the preset list with the location-based list and ii) determining a local preset list from the retrieved location-based settings that match the preset settings.

	System and method for accessing								

7,227,529	ubiquitous resources in an intelligent environment	Nokia Corporation	Suomela; Riku	345	G09G	20050318	0	100%	☐

Abstract: A system and method for enabling a wireless terminal to access and operate ubiquitous devices ("UDs"), such as televisions, DVD players, etc. The system comprises a server coupled to access points and UDs via a LAN or a WLAN. Each access point is associated with both a map of an associated area and an overlay indicating the location of the UDs within that area. In response to wireless terminal requests relayed by an access point, the server retrieves the map and overlay associated with the access point, and transmits that data to the terminal for display. Alternatively, a list of UDs may be transmitted. Selection of a UD from the display causes an image of the UD's control panel to be displayed, from which the device may be remotely controlled by the user. A mechanism is also provided to permit users to display maps of areas other than the one in which the user is currently located to permit remote control of UDs in such areas.
MainClaim: A wireless terminal, comprising: a memory device storing a program; and a processor in communication with the memory device, the processor operative with the program to: receive, over a wireless connection, data determined for presentation on a display associated with the wireless terminal based upon a location of the wireless terminal, wherein the data includes a map representative of an area associated with an access point within whose operating range the wireless terminal is located and a user-selectable object representative of a ubiquitous device from the area for display on the map; display the map with the user-selectable object depicted on the map; receive a user selection of the user-selectable object; display control information for use in controlling the ubiquitous device from the wireless terminal; and generate a control command to control an operation of the ubiquitous device.

2010/0120450	Location Specific Content	APPLE INC.	Herz; Scott	455	H04W	20081113	2	92%	☐

Abstract: Systems, methods, and computer program products communicate location information associated with a device, such as a mobile device, to a server. Content identified by the server is received at the device, from the server and/or from a content service. The content can include an application associated with the location information. The content received at the device is displayed on the device only while the device is at or near a particular location identified by the location information.
MainClaim: A method comprising:communicating location information associated with a device to a server;receiving at the device content identified by the server, the content comprising an application associated with the location information; andpresenting the received content on a display of the device only while the device is at or near a particular location identified by the location information.

7,689,932	Maintenance of shortcut keys in a mobile device	Nokia Corporation	Maktedar; Rishikesh	715	G06F	20041228	0	100%	☐

Abstract: A device and method provide for maintenance of a shortcut key to an application accessible at the device. The method includes assigning a first application to a shortcut key at a device, wherein the shortcut key at the device is a button on the device; storing an identifier of the first application to a first file at the device; determining if the first application at the device assigned to the shortcut key remains executable at the device; if the first application is determined to be unexecutable at the device, assigning a second application to the shortcut key at the device, wherein an identifier of the second application is stored in a second file at the device, and further wherein the second application is executable at the device.
MainClaim: A computerized method for maintaining a shortcut key to an application accessible at a device, the method comprising: assigning a first application to a shortcut key at a device; storing an identifier of the first application to a first file at the device; in response to detecting a change in which applications are stored on the device, determining if the first application at the device assigned to the shortcut key remains executable at the device; and if the first application is determined to be unexecutable at the device, assigning a second application to the shortcut key at the device, wherein an identifier of the second application is stored in a second file at the device, the second file indicating that the second application was recently selected by a user, wherein the second application is executable at the device, and wherein the second application is assigned based upon the indication that the second application was recently selected by the user.

2009/0176517	Multiple Recipient Messaging Service for Mobile Device	APPLE INC.	Christie; Gregory N. | van Os; Marcel MWA | Lemay; Steve | Doll; Evan | Santamaria; Justin	455	H04Q	20080106	3	93%	☐

Abstract: A messaging application can be activated on a mobile device for determining whether messages were successfully transmitted from the mobile device to one or more specified recipients. The messaging application provides a user interface that allows the user to resend the message to those recipients who did not receive the message or to cancel the message. In one implementation, the state of input text composed for failed messages is retained so that the user does not have to retype the entire message before the message is retransmitted.
MainClaim: A method, comprising:detecting a failed message transmission to a recipient originating on a mobile device;presenting a user interface on the mobile device, including a user interface element which is operable for specifying an option to resend the message to the recipient;receiving user input specifying the resend option; andresending the message to the recipient.

2010/0041382	Unified Settings for Multiple Account Types	APPLE INC.	Van Os; Marcel MWA | Marcos; Paul | Doll; Evan	455	H04M	20080812	2	93%	☐

Abstract: Account types that support one or more data classes (e.g., email, contacts, calendar, instant messaging) can be added and configured on a mobile device using a unified settings user interface. The user interface allows the user to easily activate and deactivate one or more data classes for an account type. The user interface can support one or more predefined account types and can allow the user to add and configure new account types. Visual indicators are provided in the user interface to remind the user of the data classes that are active on the mobile device for a particular account.

Users can configure settings that effect a particular data class in all accounts on the mobile device. Users can also configure settings that are specific to a particular account.
MainClaim: A method comprising:displaying on a user interface of the mobile device one or more account types;receiving first input through the user interface selecting an account type;responsive to the first input, displaying on the user interface two or more data classes associated with the account type;receiving second input through the user interface for configuring at least one data class; andadding an account of the account type on the mobile device where the account includes the at least one data class.

2009/0064038	Configuration of Device Settings	APPLE INC.	Fleischman; David | Coffman; Patrick | Christie; Gregory N. | Marcos; Paul | Cassidy; Brian | Paine; Mallory Jackson | Lamiraux; Henri	715	G06F	20070904	3	93%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for configuring a device. A device is coupled to a data source. One or more parameters associated with the data source are determined. The one or more parameters are applied to the device. Properties of the data source are inherited by the device without requiring a user to specifically input or identify the parameters for the device.
MainClaim: A method comprising:coupling a device to an agent;receiving at the device one or more parameters, wherein the one or more parameters are determined by the agent from one or more signals; andconfiguring a user interface of the device based on the received parameters.

7,345,232	Automatic personal playlist generation with implicit user feedback	Nokia Corporation	Toivonen; Hannu | Pyhalammi; Seppo	84	G10H	20031106	0	100%	☐

Abstract: Music selection systems and methods are disclosed. An adaptive set of songs is selected based on implicit feedback from a user. A random set of songs is also selected. A playlist selection module creates a playlist that includes songs from the adaptive set and the random set in a ratio determined by a surprise factor provided by a user. The playlist may also begin with a sure set of songs that are known to be enjoyed by the user.
MainClaim: A method comprising: (a) assigning individual weights to a plurality of media pieces based on activities of a user in relation to the media pieces; (b) selecting a plurality of media pieces from a media library to form an adaptive set of media pieces, wherein the probability of each media pieces being selected corresponds to the weight assigned to the media pieces; (c) selecting a random group of media pieces from the media library to form a random set of media pieces, the random set of media pieces being different than the adaptive set of media pieces; and (d) generating in a computer readable memory a playlist that is executable in a computer device, wherein the playlist includes media pieces selected from the adaptive set and media pieces selected from the random set with a ratio that corresponds to a surprise parameter.

2010/0064053	RADIO WITH PERSONAL DJ	Apple Inc.	Bull; William | Rottler; Ben	709	G06F	20080909	3	94%	☐

Abstract: An electronic device, such as a media player or portable media device, can provide enhanced playback of personalized or synthesized content in addition to streaming content. During playback of one or more media items associated with streaming content, content generated or synthesized from data or other information obtained from data sources can be personalized to be integrated with the one or more media items being streamed or broadcast. Personalized or synthesized content may be generated dynamically based on a determination that personalized content is also to be played back with the streaming content. A user may configure data feeds associated with weather information, horoscope, calendar, caller-ID, voicemail, or the like, and have content specifically generated to represented the data feeds interjected into a program or between songs at random or scheduled intervals.
MainClaim: A method for presenting streaming content by a media player configured to provide playback of one or more media items in the streaming content, the method comprising:receiving a playback request to play the streaming content;playing a portion of a media item associated with the streaming content;determining whether personalized content is also to be played with the streaming content, the personalized content generated based on information obtained from a data source; andplaying the personalized content based on a determination that personalized content is also to be played with the streaming content.

7,702,279	Portable media player as a low power remote control and method thereof	Apple Inc.	Ko; Steve | Lemay; Stephen O.	455	H04H	20051220	1	93%	☐

Abstract: A portable multimedia player is used to wirelessly access and control a media server that is streaming digital media by way of a wireless interface to a media unit such as a stereo/speakers in the case of streaming digital audio. In one embodiment, the portable multimedia player is wirelessly synchronized to a selected one(s) of a number of digital media files stored on the media server in such a way that digital media file metadata (song title, author, etc.) associated with the selected digital media file(s) only is transferred from the media server to be stored in the portable media player.
MainClaim: A method of using a portable multimedia player arranged to store digital media files to wirelessly access and/or control a media server configured to stream digital media data to a media unit, comprising: configuring the portable multimedia player to operate the portable multimedia player in a first mode or a second mode, wherein when in the first mode, the portable multimedia player performs the operations of: displaying a list of digital media files on a display of the portable multimedia player, the digital media files being stored on the portable multimedia player; receiving a selection signal to play a digital media file; and playing the selected digital media file on the portable multimedia player; wherein when in the second mode, the portable multimedia player performs the operations of:

binding the portable multimedia player and the media server; and wirelessly transmitting a media file request from the multimedia player to the media server, and wherein in response to the media file request, the media server performs the operations of: wirelessly forwarding the appropriate media file from the media server to a media unit based on the media file request; determining if a control command is to be forwarded to the media unit to control a function of the media unit; and wirelessly forwarding the control command from the media server to the media unit if it is determined that the control command is to be forwarded to the media unit, whereby the media unit is able to playback the appropriate media file in accordance with the at least one control command.

2007/0169115	Portable media player as a low power remote control and method thereof	Apple Computer, Inc.	Ko; Steve | Lemay; Stephen O.	717	G06F	20051220	1	93%	☐

Abstract: A portable multimedia player is used to wirelessly access and control a media server that is streaming digital media by way of a wireless interface to a media unit such as a stereo/speakers in the case of streaming digital audio. In one embodiment, the portable multimedia player is wirelessly synchronized to a selected one(s) of a number of digital media files stored on the media server in such a way that digital media file metadata (song title, author, etc.) associated with the selected digital media file(s) only is transferred from the media server to be stored in the portable media player.
MainClaim: A method of using a portable multimedia player arranged to store digital media files to wirelessly access and/or control a media server configured to stream digital media data to a media unit; comprising: binding the portable multimedia player and the media server; wirelessly transmitting a signal from the multimedia player to the media server; and streaming the digital media data from the media server to a media unit by way of a wireless interface using the received signal.

7,088,950	Method and apparatus for controlling integrated receiver operation in a communications terminal	Nokia Corporation	Tassberg; Markus | Haakana; Pirjo | Rysa; Erkki	455	H04H	20021126	0	100%	☐

Abstract: A method and apparatus for controlling integrated receiver operation in a communications terminal includes using an electronic device having a broadcast receiving module and a two-way communications module. The device may use the configuration of the receiving module to form a message to be sent to a peer device. The electronic device can use an incoming message to change a configuration of the receiving module. The incoming message may be sent from a notification node that is remotely configurable by a user. The receiving module can be controlled from an application program on the electronic device. In one aspect, the receiving module can be controlled from a Java™2 Micro Edition MIDlet.
MainClaim: A method for controlling a broadcast receiving module on a communications device, comprising: retrieving an operational configuration of the receiving module via an application program running in a virtual machine on the communications device to determine a state of the receiving module; applying a user input to the application program to create a changed configuration of the receiving module; applying the changed configuration to the receiving module via the application program to control the receiving module; creating a message from an operational configuration of the receiving module; and sending the message over a communications link of the communications device.

2009/0064038	Configuration of Device Settings	APPLE INC.	Fleischman; David | Coffman; Patrick | Christie; Gregory N. | Marcos; Paul | Cassidy; Brian | Paine; Mallory Jackson | Lamiraux; Henri	715	G06F	20070904	3	94%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for configuring a device. A device is coupled to a data source. One or more parameters associated with the data source are determined. The one or more parameters are applied to the device. Properties of the data source are inherited by the device without requiring a user to specifically input or identify the parameters for the device.
MainClaim: A method comprising:coupling a device to an agent;receiving at the device one or more parameters, wherein the one or more parameters are determined by the agent from one or more signals; andconfiguring a user interface of the device based on the received parameters.

2009/0061840	CARRIER CONFIGURATION AT ACTIVATION	Apple Inc.	Fleischman; David | Coffman; Patrick | Wyld; Jeremy | Cassidy; Brian | Christie; Gregory N.	455	H04M	20080902	6	92%	☐

Abstract: Methods, systems, and computer-readable medium for providing telecommunications carrier configuration at activation of a mobile device. In one implementation, a method is provided. The method includes receiving a request for activation of a mobile device, and during activation of the mobile device, determining for the mobile device a telecommunications carrier from a number of telecommunications carriers, and identifying information associated with the determined telecommunications carrier for configuring the mobile device.
MainClaim: A method comprising:receiving a request for activation of a mobile device; andduring activation of the mobile device:determining for the mobile device a telecommunications carrier from a number of telecommunications carriers; andidentifying information associated with the determined telecommunications carrier for configuring the

mobile device.

2009/0063660	SYNCHRONIZATION AND TRANSFER OF DIGITAL MEDIA ITEMS	APPLE INC.	Fleischman; David | Wysocki; Christopher R. | Mirrashidi; Payam | Kelly; Sean | Pisula; Charles | Ward; Alan | Meldrum; Colin | Gautier; Patrice | Robbin; Jeffrey	709	G06F	20080904	3	92%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for synchronizing and transferring digital media items. One or more media items are received, from a network operating environment, at a first device. A first media database on the first device, including metadata associated with the media items, is synchronized with a second media database on a second device. The one or more media items are moved from the first device to the second device. The one or more media items are copied from the second device to the first device.
MainClaim: A method, comprising:receiving, from a network operating environment, one or more media items at a first device;synchronizing a first media database on the first device, including metadata associated with the media items, with a second media database on a second device;moving the one or more media items from the first device to the second device; andcopying the one or more media items from the second device to the first device.

7,257,598	System and method for generating descriptive link names	Nokia Corporation	Toivonen; Hannu T. T. | Sorvari; Antti | Kahari; Markus	707	G06F	20021219	0	100%	☐

Abstract: A system and method for descriptively naming links to facilitate subsequent identification of the links. Various naming sources are identified as candidates for inclusion in a link name for the link. Naming rules are applied to identify one or more of the naming sources to be included in the link name. The link name is generated based on the naming sources identified by the naming rules.
MainClaim: A system for generating link names, comprising: a plurality of link name sources serving as candidates for inclusion in the link name, wherein the plurality of link name sources comprise at least a first set of naming sources and a second set of naming sources; a rule processor to determine whether a title exists for one or more pages addressable by a link and to determine which of the plurality of link name sources are to be included in the link name in response thereto, wherein the link name sources determined by the rule processor are selected from a) the first set of naming sources if the title exists and b) the second set of naming sources if the title does not exist; a link name generator to generate the link name in a predetermined format by combining at least two of the link name sources determined by the rule processor; and a non-volatile data storage of a user device configured to store a representation of the link that is identified by the link name for subsequent identification of the link via the user device.

2005/0080783	Universal interface for retrieval of information in a computer system	Apple Computer, Inc. One Infinite Loop	Arrouye, Yan | Mortensen, Keith	707	G06F	20041201	1	92%	☐

Abstract: The present invention provides convenient access to items of information that are related to various descriptors input by a user, by means of a unitary interface which is capable of accessing information in a variety of locations, through a number of different techniques. Using a plurality of heuristic algorithms to operate upon information descriptors input by the user, the present invention locates and displays candidate items of information for selection and/or retrieval. Thus, the advantages of a search engine can be exploited, while listing only relevant object candidate items of information.
MainClaim: A method for locating information in a network, comprising: receiving an inputted information identifier; providing said information identifier to at least two heuristics that search for information associated with the received identifier, wherein at least one of said heuristics searches at least one location different from another of said heuristics; providing at least one candidate item of located information; and displaying a representation of said candidate item of information.

7,130,622	Disposable mini-applications	Nokia Corporation	Vanska; Marko | Ranta; Sami | Malila; Raimo	455	H04Q	20050601	0	100%	☐

Abstract: Disposable mini-applications are executable software items whose activation, deactivation and deletion in a mobile terminal are defined by trigger parameters and rules. Trigger parameters may include, but are not intended to be limited to, location, time, stored user data and the like. Rules are one or more trigger parameters needed to effect one of the foregoing actions. In one embodiment, a housekeeping means monitors for data that corresponds to the parameters and satisfies the rules, and performs a variety of housekeeping functions relating to the disposable mini-applications. The deletion of the disposable mini-application clears memory space associated with storing and executing the disposable mini-application, and thus, makes that space available for other purposes.
MainClaim: A method for a mobile terminal, comprising: downloading over a wireless connection an executable software item including at least one condition for deletion of the executable software item, wherein the executable software item enables access over a short range wireless connection to information concerning at least one of goods or services when the mobile terminal is within a specified location associated with a short range wireless system; storing the executable software item including the condition for deletion of the executable software item in storage of the mobile terminal; and if the condition for deletion of the executable software item is satisfied, deleting the executable software item from storage of the mobile terminal.

2007/0291710	Wireless communication	Apple Computer, Inc.	Fadell; Anthony M.	370	H04Q	20060711	2	93%	☐

	system								

Abstract: A processing system is described that includes a wireless communication interface that wirelessly communicates with one or more wireless client devices in the vicinity of an establishment. The wireless communication interface receives a remote order corresponding to an item selected by at least one of the wireless client devices. A local server computer located in proximity to the establishment generates instructions for processing the remote order received from the wireless communication interface. The local server computer then passes the processing instructions to an order processing queue in preparation for processing of the remote order.
MainClaim: A processing system, comprising:a wireless communication interface arranged to wirelessly communicate with one or more wireless client devices in the vicinity of the establishment, the wireless communication interface receiving a remote order corresponding to an item selected by at least one of the wireless client devices;a local server computer located in proximity to the establishment in communication with the wireless communication interface that receives the remote order from the wireless communication interface and generates instructions for processing the remote order; anda processing queue in communication with the local server computer that receives the processing instructions from the local computer server in preparation for processing of the remote order.

7,724,716	Wireless communication system	Apple Inc.	Fadell; Anthony M.	370	H04W	20060711	2	93%	☐

Abstract: A processing system is described that includes a wireless communication interface that wirelessly communicates with one or more wireless client devices in the vicinity of an establishment. The wireless communication interface receives a remote order corresponding to an item selected by at least one of the wireless client devices. A local server computer located in proximity to the establishment generates instructions for processing the remote order received from the wireless communication interface. The local server computer then passes the processing instructions to an order processing queue in preparation for processing of the remote order.
MainClaim: A processing system, comprising: a wireless communication interface arranged to wirelessly communicate with one or more wireless client devices in the vicinity of the establishment, the wireless communication interface receiving a remote order corresponding to an item selected by at least one of the wireless client devices; a local server computer located in proximity to the establishment in communication with the wireless communication interface that receives the remote order from the wireless communication interface and generates instructions for processing the remote order, wherein the instructions include at least a processing command that includes processing requirements for the selected item; a processing queue in communication with the local server computer that receives the processing instructions from the local computer server in preparation for processing of the remote order; a local processing center coupled to the processing queue that responds to the processing command by processing the selected item according to the processing requirements; a pick up station coupled to the local processing center for staging a fully processed selected item for pick up; and a notification unit coupled to the local processing center arranged to issue a notification signal indicating an estimated amount of time until the fully processed selected item is available for pick up at the pick up station.

7,613,810	Segmenting electronic documents for use on a device of limited capability	Nokia Inc.	Romero; Richard D. | Berger; Adam L.	709	G06F	20001220	0	100%	☐

Abstract: A method includes receiving a machine readable file containing a document that is to be served to a client for display on a client device, the organization of each of the documents in the file being expressed as a hierarchy of information, and deriving subdocuments from the hierarchy of the information, each of the subdocuments being expressed in a format that permits it to be served separately to the client using a hypertext transmission protocol, at least one of the subdocuments containing information that enables it to be linked to another one of the subdocuments.
MainClaim: A method comprising receiving, from an origin server, a machine readable file containing a document that is to be served to a client for display on a client device, the file being expressed in a language that does not organize segments of the document in a hierarchy, converting the file to a language that organizes segments of the document in a hierarchy, traversing the hierarchy and assembling subdocuments from the segments, at least some of the subdocuments being assembled from more than one of the segments, the assembling conforming to an algorithm that tends to (a) balance the respective sizes of the subdocuments, (b) favor assembling the subdocuments from segments that have common parents in the hierarchy, and (c) assemble the subdocuments from segments for which replications of nodes in the hierarchy is not required, at least one of the subdocuments being expressed in a format that permits it to be served separately to the client, at least one of the subdocuments containing information that enables it to be linked to another one of the subdocuments, and serving the subdocuments to the client individually as requested by the client based on the contained information that enables it to be linked to another of the subdocuments.

2008/0307301	Web Clip Using Anchoring	APPLE INC.	Decker; Kevin | Sullivan; John | Harrison; David	715	G06F	20070608	2	92%	☐

Abstract: Methods, computer program products, systems and data structures for generating a signature for a portion or portions of a content source are described. The signature can be generated by identifying a portion or portions of a content source, and determining a signature that defines the portion or portions. If the source is updated, the signature can be retrieved and compared to elements in the updated source. If an element in the updated source matches information included in the signature, content corresponding to the matching element is displayed.
MainClaim: A method comprisingidentifying a portion of a structure of a document;determining a signature associated with the portion; andstoring the signature.

6,918,131	Systems and methods for characterizing television preferences over a wireless network	Nokia Corporation	Rautila; Heikki | Rissanen; Jussi | Tanskanen; Erkki	725	H04N	20000710	0	100%	☐

Abstract: A system for interacting with viewers of television programming includes a television set and a network terminal for each such user. The terminals are connected by the network to an interactive server which maintains a first database of persistent information for each user and a second database of current preference information for each user. The current preference information includes registrations of users as viewing particular programs or as participating in certain activities chronicled in television programs, such as lotteries, polls, and product promotions. According to information in the first and second databases and according to current user requests, the interactive server forwards information to users' terminals, modifies content of all television programming, or modifies content of television programming targeted to certain users or groups of users for selection by those users' cable or satellite set-top boxes.
MainClaim: A method of providing interactive video and data displays to each of a plurality of users, each having a television receiver and a data terminal, in accordance with information provided by each user through a data terminal, comprising the steps of:

maintaining, in association with a network server, a first database of information for each user including at least one of identification, address information, financial information, general preference information, and demographic information;

receiving in the network server from user data terminals over the network and maintaining in a second database, for each user, registration information indicating current activity and current preference information;

at least one of:

modifying content of television programming according to current content of said first database and said second database; and

sending a message from the network server over a network for display on a user's terminal,

wherein the current preference information provided by a user includes a request to learn the most commonly selected numbers in a lottery, and wherein the network server obtains the most commonly selected lottery numbers; and forwards a message to the requesting user terminal for displaying said most commonly selected lottery numbers.

2009/0171812	Media streams and media store	Apple Inc.	Fadell; Anthony	705	G06Q	20080314	3	92%	☐

Abstract: This invention is directed to providing access to one or more media streams in exchange for purchasing articles or items that may be related to at least one of the media streams. In some embodiments, the item purchased may include a media item related to a media item provided as part of a particular media stream. For example, a user may be provided access to an Internet radio station in exchange for purchasing a song. The song may include any song available from a store, a song transmitted by the Internet radio station, or a song related to a song transmitted by the Internet radio station. Each media item purchased may provide the user with a particular amount of media stream credit that may be used to access media streams. In some embodiments, different purchased media items may provide the user with the same or different amounts of credit.
MainClaim: A method for providing a user with access to a media stream, comprising:receiving a user selection of a media stream;determining whether the user is authorized to access the selected media stream;in response to determining that the user is not authorized to access the media stream, prompting the user to purchase a media item in exchange for access to the media stream;receiving a user purchase of a media item; andproviding the user with access to the selected media stream.

2007/0161402	Media data exchange, transfer or delivery for portable electronic devices	Apple Computer, Inc.	Ng.; Stanley C. | Hodge; Andrew Bert | Fadell; Anthony M. | Robbin; Jeffrey L. | Borchers; Robert Edward | Bell; Chris | Cue; Eddy	455	H04M	20060901	3	92%	☐

Abstract: Methods and systems that facilitate data delivery to electronic devices are disclosed. One aspect pertains to data delivery to electronic devices that are portable, such as, mobile devices. In one embodiment, one mobile device discovers another mobile device within its vicinity. The mobile devices can then wirelessly transmit data from one mobile device to the other. The mobile devices, or their users, can control, request or influence the particular data content being delivered.
MainClaim: A method for delivery of data to a portable electronic device from another electronic device, the method comprising:discovering the another electronic device via a wireless network;requesting data from the another electronic device over the wireless network; andreceiving from the another electronic device a wireless transmission of at least a portion of the data requested via the wireless network.

2007/0155307	Media data transfer	Apple Computer, Inc.	Ng; Stanley C. | Hodge; Andrew Bert | Fadell; Anthony M. | Robbin; Jeffrey L. | Borchers; Robert Edward | Bell; Chris | Cue; Eddy	455	H04H	20060901	3	92%	☐

Abstract: Methods and systems that facilitate data delivery to electronic devices are disclosed. One aspect pertains to data delivery to mobile devices. In one embodiment, a local server is provided at a particular location, such as at an establishment, venue, etc. The local server can operate to locally wirelessly transmit data to mobile devices within its

vicinity. Typically, the mobile devices are associated with persons (users) at the particular location. The mobile devices, or their users, can control, request or influence the particular data content being delivered. The local server can also provide customized data to the mobile devices, individually or as a group. The customization can be based on location, characteristics, interests, preferences and/or requests of the users of the mobile devices.
MainClaim: A method for delivery of data from a local server to at least one portable electronic device that can couple to a local wireless network while in the vicinity of an establishment, the method comprising:discovering the at least one portable electronic device in the vicinity of the establishment;informing the at least one portable electronic device of at least one available broadcast at the establishment;receiving a selection of the at least one available broadcast available from the local server at the establishment; andtransmitting the selected at least one available broadcast from the local server to the at least one portable electronic device.

7,464,110	Automated grouping of image and other user data	Nokia Corporation	Pyhalammi; Seppo | Haggman; Kai | Soitinaho; Jouni | Sihvola; Tuomo	707	G06F	20040630	0	100%	☐

Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).
MainClaim: A method comprising: (a) storing a plurality of data files in an original folder of a plurality of folders in a memory; (b) receiving a first user instruction to process a first data file of the plurality of data files stored in the original folder; (c) automatically creating a first folder different from the original folder within said memory in response to the first user instruction; (d) automatically storing the first data file in the first folder in response to the first user instruction; (e) automatically removing the first data file from the original folder upon storing the first data file in the first folder; (f) processing the first data file according to the first user instruction; (g) receiving a second user instruction to process a second data file subsequent to processing the first data file; and (h) automatically storing the second data file in the first folder in response to the second user instruction.

2006/0088228	Image scaling arrangement	Apple Computer, Inc.	Marriott; Greg | Boettcher; Jesse | Dowdy; Thomas | Heller; David | Miller; Jeff | Robbin; Jeffrey L.	382	G06K	20041025	1	94%	☐

Abstract: Methods and system for transferring images between devices is disclosed. For example, differently scaled images by a host device may automatically and/or selectively be transferred to a media player for display. In turn, appropriately scaled images may be transferred automatically and/or selectively to another display device for example a TV, camera or printer. The selectivity may occur either at the host level or at the player level.
MainClaim: A method of transferring image data between a host device and a portable media device, the portable media device being capable of storing and playing media items, the method comprising: at the host device, designating at least one image for downloading to the portable media device; at the host device, producing an image collection for each requested image, each image collection containing new versions of the requested image, each new version having a different image profile based on the capabilities of the portable media device; and at the host device, sending the image collection including each version of the requested image to the portable media device.

2009/0216814	IMAGE SCALING ARRANGEMENT	APPLE INC.	MARRIOTT; Greg | BOETTCHER; Jesse | DOWDY; Thomas | HELLER; David | MILLER; Jeff | ROBBIN; Jeffrey L.	707	G06F	20090406	1	94%	☐

Abstract: Methods and system for transferring images between devices is disclosed. For example, differently scaled images by a host device may automatically and/or selectively be transferred to a media player for display. In turn, appropriately scaled images may be transferred automatically and/or selectively to another display device for example a TV, camera or printer. The selectivity may occur either at the host level or at the player level.
MainClaim: A method of transferring image data between a portable media device and a device other than the portable media device, the method comprising:designating at least one image for downloading from the other device to the portable media device;sending an image request of the designated at least one image to the other device; andreceiving an image collection for each requested image in response to the image request from the other device, each image collection containing new versions of the requested image each having a different image profile based on the capabilities of the portable media device.

7,433,546	Image scaling arrangement	Apple Inc.	Marriott; Greg | Boettcher; Jesse | Dowdy; Thomas | Heller; David | Miller; Jeff | Robbin; Jeffrey L.	382	G06K	20041025	1	93%	☐

Abstract: Methods and system for transferring images between devices is disclosed. For example, differently scaled images by a host device may automatically and/or selectively be transferred to a media player for display. In turn, appropriately scaled images may be transferred automatically and/or selectively to another display device for example a TV, camera or printer. The selectivity may occur either at the host level or at the player level.
MainClaim: A method of transferring image data between a host device and a portable media device, the portable

media device being capable of storing and playing media items, the method comprising: at the host device, designating at least one image for downloading to the portable media device; at the host device, producing an image collection for each requested image, each image collection containing new versions of the requested image, each new version having a different image profile based on the capabilities of the portable media device; and at the host device, sending the image collection including each version of the requested image to the portable media device.

7,580,363	Apparatus and method for facilitating contact selection in communication devices	Nokia Corporation	Sorvari; Antti | Kahari; Markus | Toivonen; Hannu | Salmenkaita; Jukka-Pekka | Gheorghiu; Catalin	370	H04J	20040816	0	100%	☐

Abstract: An apparatus and method for facilitating user selection of communication recipients via communication devices. Communication attributes of previous communication events involving the communication device are monitored. Selection criteria are established based on the monitored communication attributes. One or more adaptive recipient history lists are maintained, which correspond to contacts that are affiliated with the communication events satisfying the selection criteria. At least one of the adaptive recipient history lists are presented to the user via the communication device, thereby allowing the user to select the intended recipient via more relevant, focused short lists of likely recipients.
MainClaim: A method comprising: monitoring one or more communication attributes of previous communication events involving device-to-device communications between a user of a communication device and other device users; determining a frequency of the communication events based on the monitored communication attributes for each of the contacts that are affiliated with the communication events; maintaining one or more sets of selectable contact identifiers corresponding to the other device users that are affiliated with the determined frequency of the communication events; and presenting at least one of the sets of selectable contact identifiers of the other device users to the user via the communication device.

2009/0177617	Systems, methods and apparatus for providing unread message alerts	Apple Inc.	Lee; Michael M.	707	G06F	20080103	3	95%	☐

Abstract: The present invention includes systems, apparatus and methods for providing message alerts to a user prior to that user communicating with a second party. The user may desire to communicate with a second party by sending a text-based message or by speaking to them through a communications device, such as a cellular phone. Prior to sending the message or speaking with the second party, the device can provide the user with message alerts, the option to review alert content, and/or to view the alert content itself. The message alerts and alert content can be notifications and/or previews of opened/unopened e-mail messages, voicemail messages, text messages, etc. Alert content can be located based on, for example, contact information of the person with whom the user desires to communicate, subject line data of a text-based message, main body data of a text based message, etc.
MainClaim: A method of providing a message alert to a user prior to the user communicating with a second party, comprising:receiving a request to facilitate communications with the second party;locating at least one keyterm based on the request;searching for alert content associated with the at least one keyterm; andproviding the message alert to the user if alert content is found.

2009/0177750	Text-based communication control for personal communication device	Apple Inc.	Lee; Michael M. | Lee; Matthew M.	709	G06F	20080103	1	93%	☐

Abstract: Systems, devices, and methods are provided for enabling a user to control the content of text-based messages sent to or received from an administered device. In some embodiments, a message will be blocked (incoming or outgoing) if the message includes forbidden content. In other embodiments, the objectionable content is removed from the message prior to transmission or as part of the receiving process. The content of such a message is controlled by filtering the message based on defined criteria. The criteria may be defined according to a parental control application. These techniques also may be used, in accordance with instructional embodiments, to require the administered devices to include certain text in messages. These embodiments might, for example, require that a certain number of Spanish words per day be included in e-mails for a child learning Spanish.
MainClaim: A text-based communication device comprising:input circuitry that provides a user interface to enable a user to perform at least one of inputting and editing a text message;transmission circuitry for sending the text message; andprocessing circuitry for controlling the sending of the text message based on at least a portion of the text message and at least one message control condition.

2009/0170492	User-programmed automated communications	Apple Inc.	Lee; Michael M.	455	H04M	20071228	5	92%	☐

Abstract: A communications device may be programmed to initiate a communications operation when a particular condition is met. The user may set any suitable condition, including for example a date and time, location, event, received or sent communications operation, or any other suitable criteria. The user may select any suitable contact method for the communications operation, including for example telephone, voicemail, email, text message, chatting, fax, or any other suitable method.
MainClaim: A method for scheduling a communications operation to be performed by a communications device, the method comprising:receiving a condition for performing the scheduled communications operation;determining whether the condition is satisfied; andperforming the scheduled communications operation in response to determining that the received condition is satisfied.

7,336,925	Graphical indication of a proximately	Nokia Corporation	Zilliacus; Martin	455	H04B	20021028	0	100%	

	located device								☐

Abstract: A system for displaying a graphical indication of a proximately located device is disclosed. When a mobile terminal (e.g., a mobile telephone) equipped with short-range communications (e.g., Bluetooth or wi-fi) as well as conventional long-range communications capabilities comes within range of set top box (e.g., a digital broadcast receiver), the set top box (STB) overlays an icon over the broadcast screen image indicating that a mobile terminal is present that can be used as a back channel to the cable operator. The overlaid icon may be presented in differing colors to indicate various characteristics of the mobile terminal, e.g., a type of the mobile terminal (phone vs. PDA) or a capability of the mobile terminal (e.g., ability to establish a GPRS or other data connection). A user of the STB can then use interactive services offered by the cable operator, and deliver interactive selections and commands to the cable operator via the mobile terminal back channel.
MainClaim: A set top box, comprising: an input port configured to receives a video broadcast signal; a short-range transceiver configured to communicating with mobile terminals within a coverage area of the short-range transceiver providing an interface for detecting at least one mobile terminal entering the coverage area and determining whether the at least one detected mobile terminal is capable of hosting a back channel to a broadcast provider that provides the video broadcast signal; an overlay module configured to modify the video broadcast signal including overlaying an icon over the received video broadcast signal in response to determining that the short-range transceiver is communicating with the at least one mobile terminal capable of hosting a back channel; and a video encoder configured to outputs the modified video broadcast signal for display on a display device.

2010/0075593	MEDIA DEVICE WITH ENHANCED DATA RETRIEVAL FEATURE	Apple Inc.	Lee; Jeffrey | Ingrassia, JR.; Michael Ignazio	455	H04H	20080924	5	92%	☐

Abstract: A personal media device including a broadcast receiver that receives broadcast media and broadcast media data from a broadcast source where the broadcast media data includes a media identifier associated with the broadcast media. The media device also includes a data transceiver that sends a retrieval request to a media server for enhanced media data where the retrieval request includes the media identifier and receives the enhanced media data via a wireless data channel. The media device further includes a processor that performs a media device operation in response to the received enhanced media data.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media and broadcast media data from a broadcast source, the broadcast media data including a media identifier associated with the broadcast media,a data transceiver for i) sending a retrieval request to a media server for enhanced media data, the retrieval request including the media identifier and ii) receiving the enhanced media data via a wireless data channel, anda processor in communication with the data transceiver for performing a media device operation in response to the received enhanced media data.

2010/0076576	SYSTEMS, METHODS, AND DEVICES FOR PROVIDING BROADCAST MEDIA FROM A SELECTED SOURCE	Apple Inc.	Lee; Jeffery | Ingrassia, JR.; Michael Ignazio | Perry; Ryan	700	G06F	20080924	3	92%	☐

Abstract: A media device including a broadcast receiver that receives media from a broadcast source via a broadcast radio signal and a radio signal sensor that measures a signal characteristic of the received broadcast radio signal. The media device also includes a data transceiver that i) requests and retrieves a network address of a media server which provides the media via a network signal from a data network, ii) establishes a data connection with the media server, and iii) receives the media via the network signal from the media server. The media device further includes a selector that i) selects the broadcast radio signal when the signal characteristic satisfies a selection standard and ii) selecting the network signal when the signal characteristic does not satisfy the selection standard. The media device also includes a user interface that provides at least one of an audio and visual output based on the selected signal.
MainClaim: A media device comprising:a broadcast receiver for receiving media from a broadcast source via a broadcast radio signal;a radio signal sensor for measuring a signal characteristic of the received broadcast radio signal;a data transceiver for i) requesting and retrieving a network address of a media server providing the media via a network signal from a data network, ii) establishing a data connection with the media server, andiii) receiving the media via the network signal from the media server; anda selector for i) selecting the broadcast radio signal when the signal characteristic satisfies a selection standard and ii) selecting the network signal when the signal characteristic does not satisfy the selection standard; anda user interface for providing at least one of an audio and visual output based on the selected signal.

7,672,978	Handling of content in a data processing device	Nokia Corporation	Lehtola; Ari | Ojala; Markku | Partanen; Tiina	1	G06F	20040820	0	100%	☐

Abstract: A method is shown for handling content in a data processing device, the data processing device comprising at least a first application and a data-handling module. The method comprises: synchronizing, in the control of said data-handling module, content of a first external device and at least one file residing in a specific folder of the data processing device, the file being accessible by at least one first application, and the file being generated by means of the first application or the file being directed to the first application, or both.
MainClaim: A method, comprising: obtaining information relating to a content, said information being used for synchronizing said content between a data processing device and a first external device, transferring said content from said data processing device to said first external device by way of synchronization between said data processing device and said first external device, said content being stored in said first external device for further transmission to a second external device that does not have direct communications with said data processing device, and controlling a transmission of said content from said first external device to said second external device, wherein said content is generated by a content-handling application of said data processing device and stored as at least one file in a specific folder of said data processing device, wherein said synchronizing between said data processing device and said first

external device is controlled by a data-handling module of said data processing device without implementing synchronization functionality into the content-handling application, and wherein said data-handling module provides an interface for use by said content-handling application, and the transmission of said content from said first external device to said second external device is commanded by said content-handling application via said interface.

7,660,831	Synchronization methods and systems	Apple Inc.	Freedman; Gordon J.	709	G06F	20070107	1	93%	☐

Abstract: Widget synchronization architectures, methods, systems, and computer readable media are described. One exemplary embodiment includes a first software component which is configured to cause retrieval and storage of data for a first data class for one or more widgets from a first store of the data on a device, such as a first data processing system, and is configured to synchronize data for the first data class in the first store with data of the first data class in a second store on at least one of a host or another device, such as a second data processing system. The first software component is separate from a widget application software which provides a user interface to allow a user to use the data. The first software component synchronizes the structured data through a second software component which interfaces with the host and the device.

MainClaim: A computer readable medium containing executable program instructions to synchronize first data on a device with second data on at least one of a host or another device comprising: a first software component configured to cause retrieval and storage of data for a first data class, which includes data for one or more widgets, from a first store of the data on a device and configured to synchronize the first data for the first data class in the first store with the second data for the first data class in a second store, the first software component being separate from an application software which provides a user interface to allow a user to use the data; and a second software component, wherein the first software component synchronizes the first data through the second software component which is coupled to the first software component through software based messages, the second software component configured to couple the device to the host or the another device through the software based messages, wherein the first software component is a data source and wherein the first software component sends a message specifying a next device anchor for a widget synchronization process and a previous host anchor for a widget synchronization process and causes, if synchronizing of the first data class is successful, saving of the next device anchor for a widget synchronization process and a next host anchor for a widget synchronization process; and wherein the first software component sends a version identifier for the first software component to the host and receives a version identifier for a data class handler software component on the host for the first data class, and wherein the first software component is updateable independently from the second software component.

6,934,718	Categorizing and retrieving items	Nokia Corporation	Davidsson; Marcus	707	G06F	20011009	0	100%	☐

Abstract: A web browser is configured to categorise book marked web pages. The browser runs a process that provides markers (CM**1, 2, 3**), which generate marker signals corresponding to individual categories for the content of the web pages. A user interface (**21**) is operable to allow the user to collocate a selection of the plurality of marker signals with network address data for the web page to be book marked, and also to allow the user to retrieve book marked web pages on the basis of the marker signals collocated to them.

MainClaim: Data processing apparatus for categorizing items comprising:

a user input device;

a graphical user interface including first and second sections; and

processing circuitry operable to display an electronic reference to an item to be categorized in the first section of the graphical user interface and to display a plurality of markers in the second section, wherein each of said plurality of markers is configured for applying a different individual indicium, each individual indicium being associated with an individual category from the plurality of categories; and wherein

the circuitry being operable to generate marker signals corresponding to individual categories for said item when a user utilizes the user interface to select markers from said plurality of markers, whereby the data corresponding to said item to be categorized is collocated with a selection of said plurality of categories corresponding to the selected markers;

the circuitry being operable to display an individual indicium in the first section of the graphical user interface when a marker signal is generated for an item, wherein said individual indicium is associated with the category corresponding to said marker signal; and

said user interface being operable to retrieve those items that have been collocated with at least one said selectable marker signals corresponding to at least one of said individual categories.

2008/0046840	SYSTEMS AND METHODS FOR PRESENTING DATA ITEMS	Apple Inc.	Melton; Don | Ording; Bas	715	G06F	20071030	2	97%	☐

Abstract: Systems, methods, and software for presenting data are described. Previously accessed data items are presented in a manner that is non-chronological relative to when the data items were accessed. The presentation optionally includes an indication of a significance of the data item with the representation.

MainClaim: In a graphical user interface, a method comprising: receiving a selection of a data item; updating a list of previously accessed data items in response to the selection; and graphically presenting a history of previously accessed data items, the history organized by one or more common features determined from the data items in the list.

	SYSTEMS AND METHODS FOR	Apple Computer,	Melton; Don |						

2007/0162298	PRESENTING DATA ITEMS	Inc.	Ording; Bas	705	G06F	20070105	2	97%	☐

Abstract: Systems, methods, and software for presenting data are described. Previously accessed data items are presented in a manner that is non-chronological relative to when the data items were accessed. The presentation optionally includes an indication of a significance of the data item with the representation.
MainClaim: A method of presenting indications of previously visited web pages, the method comprising the acts of: determining that a first of a plurality of indications of previously visited web pages satisfies a criteria for significance; and emphasizing the first indication over other indications in a manner that is perceptible to a user.

2007/0220441	SYSTEMS AND METHODS FOR ORGANIZING DATA ITEMS	Apple Computer, Inc.	Melton; Don | Ording; Bas	715	G06F	20070105	1	97%	☐

Abstract: Systems, methods, and software for organizing data are described. An organizational method is selected from one or more predetermined organizational methods, specified by a parameter, or determined from information about the data items. Data items are sorted based on the organizational method.
MainClaim: A method of organizing visited web pages, the method comprising the acts of: analyzing each of a plurality of web pages presented by an application to determine subject matter of each of the plurality of web pages; recording location information for each of the plurality of web pages; organizing the recorded location information in accordance with the determined subject matter; and presenting indications of the recorded location information in accordance with the determined subject matter responsive to a request for presentation of previously visited web pages.

7,676,193	Selection and tuning of a broadcast channel based on interactive service information	Nokia Corporation	Zilliacus; Martin	455	H04H	20030410	0	100%	☐

Abstract: The present invention provides methods and apparatus for tuning a broadcast processing system by using channel data from an interactive information source. The broadcast processing system interfaces with a broadcast medium and may include an interfacing apparatus that interfaces to the broadcast medium for extracting an appropriate broadcast signal and for tuning the broadcast processing system. The viewer uses a mobile terminal that communicates with the interactive information source over a first wireless communications path. The viewer may interact with the web site by navigating through the associated web pages in order to obtain broadcast information about the selected program, in which the broadcast information may be sent to the mobile terminal over the first wireless communications path. The broadcast information is processed by the wireless terminal in order to obtain the channel data. Consequently, the channel data may be sent to the broadcast processing system in order to tune the broadcast processing system to the selected program.
MainClaim: A method comprising: connecting to an interactive information source on an Internet web site by a mobile terminal over a first wireless communications path; receiving in the mobile terminal through a user interface a user input selecting a broadcast program on the interactive information source; in response to the user input, receiving by the mobile terminal broadcasting program scheduling information comprising a scheduled broadcast time from the interactive information source; connecting in the mobile terminal to a broadcast receiving processing system over a second wireless communications path; and sending by the mobile terminal at least part of the received broadcasting program scheduling information to the broadcast receiving processing system over the second wireless communications path with instruction to set the broadcast receiving processing system to receive the selected broadcast program on a broadcast transmission network at the scheduled broadcast time.

2010/0075593	MEDIA DEVICE WITH ENHANCED DATA RETRIEVAL FEATURE	Apple Inc.	Lee; Jeffrey | Ingrassia, JR.; Michael Ignazio	455	H04H	20080924	5	93%	☐

Abstract: A personal media device including a broadcast receiver that receives broadcast media and broadcast media data from a broadcast source where the broadcast media data includes a media identifier associated with the broadcast media. The media device also includes a data transceiver that sends a retrieval request to a media server for enhanced media data where the retrieval request includes the media identifier and receives the enhanced media data via a wireless data channel. The media device further includes a processor that performs a media device operation in response to the received enhanced media data.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media and broadcast media data from a broadcast source, the broadcast media data including a media identifier associated with the broadcast media,a data transceiver for i) sending a retrieval request to a media server for enhanced media data, the retrieval request including the media identifier and ii) receiving the enhanced media data via a wireless data channel, anda processor in communication with the data transceiver for performing a media device operation in response to the received enhanced media data.

7,539,795	Methods and apparatus for implementing dynamic shortcuts both for rapidly accessing web content and application program windows and for establishing context-based user	Nokia Corporation	Vahtola; Miika	710	G06F	20060130	0	100%	☐

	environments								

Abstract: The invention disclosed herein concerns methods and apparatus for implementing dynamic shortcuts for use in navigating web content and application program windows. In particular, the methods and apparatus of the invention allow a user to associate one or more items selected from web content or application program windows with a dynamic shortcut. In one aspect of the invention, a user assigns a keyboard shortcut to one or more web pages viewed during the browsing session. Once assigned a keyboard shortcut, the one or more web pages can be rapidly accessed using the keyboard shortcut. In variations of the invention, the one or more web pages may be assigned an icon accessible from, for example, the desktop. In other aspects of the invention the keyboard shortcut or icon is associated with content or resources derived from multiple sources; such as, for example, web pages located using a browser and application program windows spawned using an application program.
MainClaim: A memory medium storing a computer program executable by a digital processor of an electronic device, the electronic device having a display for displaying a graphical user interface, wherein when the computer program is executed by the digital processor operations are performed for creating a keyboard shortcut for navigating between resources capable of being displayed in the graphical user interface, the operations comprising: receiving a command to associate at least a first resource with the keyboard shortcut; associating the first resource with the keyboard shortcut; receiving a command to associate at least a second resource with the keyboard shortcut; associating the second resource with the keyboard shortcut while maintaining the association of the first resource with the keyboard shortcut so that both the first and second resource can be accessed with the keyboard shortcut, wherein when the second resource is associated with the keyboard shortcut both the first resource and the second resource are visible in the graphical user interface of the electronic device and are arranged within the graphical user interface in accordance with a user-specified arrangement; saving arrangement information describing the user-specified arrangement of the first resource and the second resource within the graphical user interface at the time the second resource is associated with the keyboard shortcut; detecting entry of a key sequence corresponding to the keyboard shortcut associated with the first and second resource; and displaying both the first resource and the second resource in the graphical user interface of the electronic device in response to the detection of the entry of the key sequence corresponding to the keyboard shortcut, wherein the first resource and the second resource are displayed in accordance with the user-specified arrangement described in the arrangement information.

7,530,026	User interface element with auxiliary function	Apple Inc.	Chaudhri; Imran A. | Louch; John | Grignon; Andrew M. | Christie; Gregory N.	715	G06F	20060307	1	95%	☐

Abstract: A user-activatable dashboard (also referred to as a unified interest layer) contains any number of user interface elements, referred to herein as "widgets," for quick access by a user. In response to a command from a user, the dashboard is invoked and the widgets are shown on the screen. The user can activate the dashboard at any time, causing the dashboard to temporarily replace the existing user interface display on the user's screen. Once the dashboard has been activated, the user can interact with any or all of the widgets, and can configure the dashboard by adding, deleting, moving, or configuring individual widgets as desired. When the user wishes to return to the normal user interface he or she was working with, the user issues a command causing the dashboard to be dismissed. Once the dashboard has been dismissed, the previous user interface state is restored, allowing the user to resume normal interactions with the operating system.
MainClaim: A method for displaying auxiliary controls for a user interface element on a display screen, the method comprising: displaying a first side of a user interface element wherein the first side consists of a software accessory with a functionality; responsive to receiving user input to display the auxiliary controls for the software accessory, displaying a second side of the user interface element, the second side comprising the auxiliary controls; and receiving changes to the software accessory via the auxiliary controls, wherein the changes are reflected in the appearance and functionality of the software accessory on the first side of the user interface element.

2009/0228824	MULTIPLE DASHBOARDS	APPLE INC.	Forstall; Scott | Chaudhri; Imran A. | Louch; John O. | Peyton; Eric Steven	715	G06F	20090520	1	95%	☐

Abstract: Systems, methods, computer-readable mediums, user interfaces and other implementations are disclosed for organizing, managing and presenting widgets in display areas associated with multiple dashboard environments. In some implementations, a first display area associated with a first dashboard environment is configured for displaying at least one widget from a first set of widgets. A second display area associated with a second dashboard environment is configured for displaying at least one widget from a second set of widgets.
MainClaim: A method comprising:presenting a desktop user interface in a display area; andinvoking a first dashboard including one or more widgets, where invoking the first dashboard includes shrinking the desktop user interface to a portion of the display area and presenting the first dashboard in a larger portion of the display area.

7,503,010	Remote access to layer and user interface elements	Apple Inc.	Chaudhri; Imran A. | Louch; John | Grignon; Andrew M. | Christie; Gregory N.	715	G06F	20060307	1	95%	☐

Abstract: A user-activatable dashboard (also referred to as a unified interest layer) contains any number of user interface elements, referred to herein as "widgets," for quick access by a user. In response to a command from a user, the dashboard is invoked and the widgets are shown on the screen. The user can activate the dashboard at any time, causing the dashboard to temporarily replace the existing user interface display on the user's screen. Once the dashboard has been activated, the user can interact with any or all of the widgets, and can configure the dashboard by adding, deleting, moving, or configuring individual widgets as desired. When the user wishes to return to the normal user interface he or she was working with, the user issues a command causing the dashboard to be dismissed. Once the dashboard has been dismissed, the previous user interface state is restored, allowing the user to resume normal

interactions with the operating system.
MainClaim: In a computer system including a display screen comprising an area displaying a user interface, a method for presenting a layer, comprising: responsive to a trigger event by a user of the computer system, activating a layer configured for the user in the area displaying the user interface on the display screen of the computer system, thereby providing access to a group of widgets visually contained by the layer, wherein at least one widget in the group of widgets is capable of executing separately from the layer and at least one of the widgets in the group of widgets was not visible on the display screen prior to activation of the layer; and wherein the layer displayed on the display screen of the computer system may be accessed by the user from a location remote from the computer system display screen.

7,072,672	Disposable mini-applications	Nokia Corporation	Vanska; ; Marko | Ranta; Sami | Malila; Raimo	455	H04Q	20021101	0	100%	☐

Abstract: Disposable mini-applications are executable software items whose activation, deactivation and deletion in a mobile terminal are defined by trigger parameters and rules. Trigger parameters may include, but are not intended to be limited to, location, time, stored user data and the like. Rules are one or more trigger parameters needed to effect one of the foregoing actions. In one embodiment, a housekeeping means monitors for data that corresponds to the parameters and satisfies the rules, and performs a variety of housekeeping functions relating to the disposable mini-applications. The deletion of the disposable mini-application clears memory space associated with storing and executing the disposable mini-application, and thus, makes that space available for other purposes.
MainClaim: A method for a mobile terminal having a processor and a memory for processing and storing data to manage storage of an executable software item of limited operability that provides a user of the mobile terminal with shopping assistance, comprising: downloading an executable software item for providing a user of a mobile terminal with assistance while shopping, wherein the executable software item comprises data comprising an identification of one or more shopping service locations and trigger conditions for activation and deletion of the executable software item from memory of the mobile terminal; detecting, via a short range wireless connection, that the user is located within proximity of a shopping service location; accessing user data comprising indications of goods and/or services of interest to the user; comparing goods and/or services offered by the shopping service location with the user data to determine whether there is a match; if there is a match, activating the executable software item; and executing the executable software item; wherein execution of the executable software item comprises: generating a query for transmission to the shopping service location, the query including the user data; and transmitting the query to the shopping service location via a short range wireless connection.

2007/0291710	Wireless communication system	Apple Computer, Inc.	Fadell; Anthony M.	370	H04Q	20060711	2	93%	☐

Abstract: A processing system is described that includes a wireless communication interface that wirelessly communicates with one or more wireless client devices in the vicinity of an establishment. The wireless communication interface receives a remote order corresponding to an item selected by at least one of the wireless client devices. A local server computer located in proximity to the establishment generates instructions for processing the remote order received from the wireless communication interface. The local server computer then passes the processing instructions to an order processing queue in preparation for processing of the remote order.
MainClaim: A processing system, comprising:a wireless communication interface arranged to wirelessly communicate with one or more wireless client devices in the vicinity of the establishment, the wireless communication interface receiving a remote order corresponding to an item selected by at least one of the wireless client devices;a local server computer located in proximity to the establishment in communication with the wireless communication interface that receives the remote order from the wireless communication interface and generates instructions for processing the remote order; anda processing queue in communication with the local server computer that receives the processing instructions from the local computer server in preparation for processing of the remote order.

7,724,716	Wireless communication system	Apple Inc.	Fadell; Anthony M.	370	H04W	20060711	2	93%	☐

Abstract: A processing system is described that includes a wireless communication interface that wirelessly communicates with one or more wireless client devices in the vicinity of an establishment. The wireless communication interface receives a remote order corresponding to an item selected by at least one of the wireless client devices. A local server computer located in proximity to the establishment generates instructions for processing the remote order received from the wireless communication interface. The local server computer then passes the processing instructions to an order processing queue in preparation for processing of the remote order.
MainClaim: A processing system, comprising: a wireless communication interface arranged to wirelessly communicate with one or more wireless client devices in the vicinity of the establishment, the wireless communication interface receiving a remote order corresponding to an item selected by at least one of the wireless client devices; a local server computer located in proximity to the establishment in communication with the wireless communication interface that receives the remote order from the wireless communication interface and generates instructions for processing the remote order, wherein the instructions include at least a processing command that includes processing requirements for the selected item; a processing queue in communication with the local server computer that receives the processing instructions from the local computer server in preparation for processing of the remote order; a local processing center coupled to the processing queue that responds to the processing command by processing the selected item according to the processing requirements; a pick up station coupled to the local processing center for staging a fully processed selected item for pick up; and a notification unit coupled to the local processing center arranged to issue a notification signal indicating an estimated amount of time until the fully processed selected item is available for pick up at the pick up station.

7,293,060	Electronic disc jockey service	Nokia Siemens Networks Oy	Komsi; Asko	709	G06F	20020627	0	100%	☐

Abstract: An electronic disc jockey service in which the services of a disc jockey are effectively transformed into an Internet-based (or other network-based) service that is accessible from anywhere the Internet is accessible. Disc jockey services may in theory be provided to anybody, anytime, anywhere, as long as they have sufficient access to the

Internet or other network. This service also may be used to link together several parties going on at the same time in different geographic locations. Thus, several parties that are separated by great distances may be united into a single virtual party. The electronic disc jockey service may deliver various content to the parties such as music, video clips, interactive games, and the like.
MainClaim: An apparatus for providing electronic disc jockey services to a party community over a network, comprising: a content source configured to store a plurality of content items; a virtual disc jockey engine configured to provide a virtual disc jockey, wherein the virtual disc jockey is an animated graphical character displayed to the party community and is configured to respond to requests over the network from the party community; an interactivity engine configured to provide a plurality of interactive content items; a content-control station coupled to the network, the content source, the virtual disc jockey engine, and the interactivity engine, and configured to forward at least some of the content items, at least some of the interactive content items, and the virtual disc jockey over the network.

2009/0171812	Media streams and media store	Apple Inc.	Fadell; Anthony	705	G06Q	20080314	3	94%	☐

Abstract: This invention is directed to providing access to one or more media streams in exchange for purchasing articles or items that may be related to at least one of the media streams. In some embodiments, the item purchased may include a media item related to a media item provided as part of a particular media stream. For example, a user may be provided access to an Internet radio station in exchange for purchasing a song. The song may include any song available from a store, a song transmitted by the Internet radio station, or a song related to a song transmitted by the Internet radio station. Each media item purchased may provide the user with a particular amount of media stream credit that may be used to access media streams. In some embodiments, different purchased media items may provide the user with the same or different amounts of credit.
MainClaim: A method for providing a user with access to a media stream, comprising:receiving a user selection of a media stream;determining whether the user is authorized to access the selected media stream;in response to determining that the user is not authorized to access the media stream, prompting the user to purchase a media item in exchange for access to the media stream;receiving a user purchase of a media item; andproviding the user with access to the selected media stream.

2007/0161402	Media data exchange, transfer or delivery for portable electronic devices	Apple Computer, Inc.	Ng.; Stanley C. | Hodge; Andrew Bert | Fadell; Anthony M. | Robbin; Jeffrey L. | Borchers; Robert Edward | Bell; Chris | Cue; Eddy	455	H04M	20060901	3	93%	☐

Abstract: Methods and systems that facilitate data delivery to electronic devices are disclosed. One aspect pertains to data delivery to electronic devices that are portable, such as, mobile devices. In one embodiment, one mobile device discovers another mobile device within its vicinity. The mobile devices can then wirelessly transmit data from one mobile device to the other. The mobile devices, or their users, can control, request or influence the particular data content being delivered.
MainClaim: A method for delivery of data to a portable electronic device from another electronic device, the method comprising:discovering the another electronic device via a wireless network;requesting data from the another electronic device over the wireless network; andreceiving from the another electronic device a wireless transmission of at least a portion of the data requested via the wireless network.

2007/0155307	Media data transfer	Apple Computer, Inc.	Ng; Stanley C. | Hodge; Andrew Bert | Fadell; Anthony M. | Robbin; Jeffrey L. | Borchers; Robert Edward | Bell; Chris | Cue; Eddy	455	H04H	20060901	3	92%	☐

Abstract: Methods and systems that facilitate data delivery to electronic devices are disclosed. One aspect pertains to data delivery to mobile devices. In one embodiment, a local server is provided at a particular location, such as at an establishment, venue, etc. The local server can operate to locally wirelessly transmit data to mobile devices within its vicinity. Typically, the mobile devices are associated with persons (users) at the particular location. The mobile devices, or their users, can control, request or influence the particular data content being delivered. The local server can also provide customized data to the mobile devices, individually or as a group. The customization can be based on location, characteristics, interests, preferences and/or requests of the users of the mobile devices.
MainClaim: A method for delivery of data from a local server to at least one portable electronic device that can couple to a local wireless network while in the vicinity of an establishment, the method comprising:discovering the at least one portable electronic device in the vicinity of the establishment;informing the at least one portable electronic device of at least one available broadcast at the establishment;receiving a selection of the at least one available broadcast available from the local server at the establishment; andtransmitting the selected at least one available broadcast from the local server to the at least one portable electronic device.

7,216,034	System and method for an intelligent multi-modal user interface for route drawing	Nokia Corporation	Vitikainen; Timo | Korhonen; Panu	701	G01C	20030227	0	100%	☐

Abstract: A system and method for providing an interactive, multi-modal interface used to generate a route drawing. A mobile terminal display initially displays map data indicative of a user's region of interest. Through a series of audible, visual, and tactile excitations, the user interacts with the route drawing system to generate a desired route to be superimposed upon the user's region of interest. User preferences are used by the system to intelligently aid the user in

selection of each segment of the route to be drawn. An analysis of each segment, as well as an analysis of the final route, is performed so that the attributes of the route, along with the graphical representation of the route itself, may be stored either locally within the mobile terminal or remotely within a map server.
MainClaim: A method for generating a route drawing on a mobile terminal display, comprising: displaying map data indicative of a region of interest on the mobile terminal display; setting user preferences associated with the route drawing; and facilitating user-initiated multi-modal excitations via the mobile terminal to cause multiple route segments of the route drawing to be interactively superimposed upon the region of interest, wherein the user preferences are used to prioritize placement of any one or more of the multiple route segments; and prompting user interaction through feedback to specify placement of any one or more of the multiple route segments during superimposition of the route drawing.

2009/0005082	DISFAVORED ROUTE PROGRESSIONS OR LOCATIONS	Apple Inc.	FORSTALL; SCOTT | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080125	2	94%	☐

Abstract: Adaptive route guidance can include analyzing route progressions associated with one or more routes based on multiple user preferences. The adaptive route guidance can provide one or more preferred routes based on the user preferences, which can be presented to a user for navigation purposes.
MainClaim: A method comprising:identifying one or more preferences comprising one or more disfavored route progressions associated with a user;identifying destination information associated with a user;identifying one or more potential routes comprising a plurality of route progressions based on a current location and the destination information;analyzing the plurality of route progressions associated with the one or more potential routes based on the disfavored route progressions associated with the user; andpresenting one or more routes to the user based on the analysis.

2009/0005964	Intelligent Route Guidance	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	701	G01C	20080125	2	94%	☐

Abstract: Intelligent route guidance can include deriving one or more routes based on traffic, historical data and/or preference data associated with route progressions implicated by the one or more routes. The route guidance can provide one or more recommended routes, which can be presented to a user for navigation purposes.
MainClaim: A method comprising:identifying destination information associated with a mobile device;identifying one or more routes comprising a plurality of route progressions based on a current location of the mobile device and the destination information;retrieving route information associated with the plurality of route progressions, the route information comprising user preferences and traffic information associated with the plurality of route progressions;analyzing the plurality of route progressions based on the route information; andpresenting one or more routes to the user based on the analysis.

2009/0005965	Adaptive Route Guidance Based on Preferences	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	701	G01C	20080125	2	94%	☐

Abstract: Adaptive route guidance can include analyzing route progressions associated with one or more routes based on multiple user preferences. The adaptive route guidance can provide one or more preferred routes based on the user preferences including those derived from historical selection or use, which can be presented to a user for navigation purposes.
MainClaim: A method comprising:receiving a plurality of preferences associated with a user;identifying destination information associated with the user;identifying one or more potential routes comprising a plurality of route progressions based on a current location and the destination information;analyzing the plurality of route progressions based on the plurality of preferences associated with the user; andpresenting one or more preferred routes to the user based on the analysis.

7,660,864	System and method for user notification	Nokia Corporation	Markki; Outi | Vesalainen; Timo | Aaltonen; Antti	709	G06F	20030627	0	100%	☐

Abstract: Systems and methods applicable, for example, in having a node inform its user of one or more events while the user interface of the node is in an idle state. The user might, for instance, be able to select one or more of the events of which she is informed for corresponding operations. The events of which the user is informed might include, for example, events corresponding to software operations and/or events corresponding to a network environment (e.g., a peer-to-peer environment).
MainClaim: A method, comprising: determining to monitor, at an apparatus, for an event of association of one or more messages with one or more specified criteria, wherein the messages are received, at the apparatus, from a first node separate from the apparatus to be passed through to a second node separate from the apparatus; determining to monitor, at the apparatus, for an event of one or more nodes, corresponding to holdings in an address book maintained by the apparatus, coming nearby; determining to provide, at the apparatus to said user, a non-moving display of one or more notifications corresponding to one or more of the events wherein each of said notifications describes one or more of said events, and wherein the notifications had previously been moving while a user interface of said apparatus displayed a screensaver; and determining to enable, at the apparatus, said user to select, via the non-moving display, one or more of the notifications for activating corresponding operations.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy;	709	G06F	20080304	18	92%	☐

			Brendan A.						

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,209,893	Method of and a system for distributing electronic content	Nokia Corporation	Nii; Naoaki	705	G06Q	20001130	0	100%	☐

Abstract: A terminal device, a memory module and a system for and method of distributing electronic content. A content provider stores a number of multimedia files. A first integrated circuit card interface receives a host integrated circuit card containing first authorization information, and a second integrated circuit card interface receives a user integrated circuit card containing second authorization information. An input device permits selection of one or more multimedia files from the stored of multimedia files. A control unit is responsive to insertion into the second integrated circuit card interface of a user interface card containing second authorization information compatible with the first authorization information contained in a host integrated circuit card inserted in the first integrated circuit card interface to actuate an output device to provide the content of multimedia files selected by the input device. The content provider, control unit, input device, and output device might be a laptop computer, a wireless personal terminal, or a personal computer. The multimedia content delivery system might be provided in a kiosk in a public place, permitting a user to wirelessly download an electronic copy of the selected media to a laptop computer or wireless personal terminal.
MainClaim: A multimedia content delivery system, comprising: a content provider providing multimedia files; a first integrated circuit card interface in a multimedia terminal for receipt of a host integrated circuit card containing first authorization information; a second integrated circuit card interface in said multimedia terminal for receipt of a user integrated circuit card containing second authorization information; an input device for selecting at least one multimedia file from the plurality of multimedia files, wherein information regarding the selected at least one multimedia file comprises authorization information stored on the first integrated circuit card or the second integrated circuit card; an output device for providing the content of at least one authorized multimedia file provided by the content provider to a user of the user integrated circuit card; and a control unit in said multimedia terminal, responsive to the host and user integrated circuit cards being received in the first and second integrated circuit card interfaces, which compares the first and second authorization information and when the first and second authorization information is found to be compatible actuates said output device to provide the content of the at least one multimedia file from the content provider selected by said input device under control of the authorization information which authorizes downloading of the at least one authorized multimedia file through the output device, contained in the first and second authorization information; and wherein the content is provided from a database external from the integrated circuit cards.

2010/0082448	Media gifting devices and methods	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael | Hodge; Andrew	705	G06Q	20080930	2	93%	☐

Abstract: Various techniques are provided for the gifting between multiple electronic devices of media content provided by an online digital media provider. An offer and acceptance of a selected gift file is accomplished between a gifter device and a receiving giftee device using a near-field communication (NFC) connection. If a connection to the online provider is available, the gifter device may transmit a gift request by which the gifter's account is charged for the gift file. Thereafter, a gift file created using DRM keys associated with the giftee's account may be downloaded to the giftee device. If a network connection is unavailable, the giftee device may transfer a locked gift file and a corresponding gift license to the giftee device using a peer-to-peer connection. The giftee device may authenticate the license and unlock the gift file once a connection to the online provider is available.
MainClaim: A method for gifting one or more digital media files from a first device to a separate second device comprising:transmitting a gift offer from the first device to gift the one or more digital media files to the second device;receiving an acceptance of the gift offer from the second device; andtransmitting a gift request to a separate external server associated with an online digital media provider, the external server being configured to authorize the creation of a gift file corresponding to each of the one or more digital media files for transmission from the external server to the second device.

2010/0082489	System and method for processing media gifts	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael | Hodge;	705	H04L	20080930	1	93%	☐

			Andrew						

Abstract: Various techniques are provided for the gifting between multiple electronic devices of media content provided by an online digital media provider. An offer and acceptance of a selected gift file is accomplished between a gifter device and a receiving giftee device using a near-field communication (NFC) connection. If a connection to the online provider is available, the gifter device may transmit a gift request by which the gifter's account is charged for the gift file. Thereafter, a gift file created using DRM keys associated with the giftee's account may be downloaded to the giftee device. If a network connection is unavailable, the giftee device may transfer a locked gift file and a corresponding gift license to the giftee device using a peer-to-peer connection. The giftee device may authenticate the license and unlock the gift file once a connection to the online provider is available.
MainClaim: A method for approving a request to gift a digital media file from a first device to a second device on a server associated with an online digital media provider, the method comprising:receiving a gift request from the first device;processing the gift request to determine at least an account belonging to a user of the first device, an account belonging to the user of the second device, and an identity of the digital media file, wherein the accounts belonging to the users of the first and second devices are associated with the online digital media provider; andauthorizing the creation of a gift file to be received by the second device.

7,697,923	System and method for providing an automatic generation of user theme videos for ring tones and transmittal of context information	Nokia Corporation	Eronen; Antti	455	H04M	20050512	0	100%	☐

Abstract: A system and method for automatically generating a video specific to a contact for display on a mobile telephone when a call is initiated with the contact. Media files are manually and/or automatically associated with an individual contact, and a video generator module automatically creates a theme video based upon the associated media files. When a call is made to or from the contact, the video is played on the mobile telephone or other electronic device.
MainClaim: A method, comprising: associating a contact with selected files from a plurality of files at a device of a user; generating a series of multimedia items from the associated files at the device of the user; associating the generated series of multimedia items with the contact at the device of the user; upon an attempted initiation of a telephone call with the contact, exhibiting the generated series of multimedia items on the device of the user; and upon receiving additional information concerning the contact during the telephone call, updating the generated series of multimedia items to reflect the additional information.

2009/0177300	Methods and apparatus for altering audio output signals	Apple Inc.	Lee; Michael M.	700	G06F	20080402	1	95%	☐

Abstract: Methods, systems and computer readable media for altering an audio output are provided. In some embodiments, the system may change the original frequency content of an audio data file to a second frequency content so that a recorded audio track will sound as if a different person had recorded it when it is played back. In other embodiments, the system may receive an audio data file and a voice signature, and it may apply the voice signature to the audio data file to alter the audio output of the audio data file. In that instance, the audio data file may be a textual representation of a recorded audio data file.
MainClaim: A method for producing altered audio output signals, comprising:providing an audio data file having a first frequency content;processing an audio input having a second frequency content;changing the first frequency content of the audio data file to the second frequency content; andplaying the altered audio file to produce altered audio output signals.

2006/0168150	Media presentation with supplementary media	Apple Computer, Inc.	Naik; Devang K. | Silverman; Kim Ernest Alexander | Tribble; Guy L.	709	G06F	20060306	1	93%	☐

Abstract: Improved techniques for providing supplementary media for media items are disclosed. The media items are typically fixed media items. The supplementary media is one or more of audio, video, image, or text that is provided by a user to supplement (e.g., personalize, customize, annotate, etc.) the fixed media items. In one embodiment, the supplementary media can be provided by user interaction with an on-line media store where media items can be browsed, searched, purchased and/or acquired via a computer network. In another embodiment, the supplementary media can be generated on a playback device.
MainClaim: A method for outputting media data to be played on a media output device, said method comprising: identifying media data for a media item to be played; determining whether supplementary media data is associated with the media item; and concurrently outputting the identified media data together with the supplementary media data to the media output device.

2010/0063818	MULTI-TIERED VOICE FEEDBACK IN AN ELECTRONIC DEVICE	Apple Inc.	Mason; James Eric | Boettcher; Jesse	704	G10L	20080905	1	93%	☐

Abstract: This invention is directed to providing voice feedback to a user of an electronic device. Because each electronic device display may include several speakable elements (i.e., elements for which voice feedback is provided), the elements may be ordered. To do so, the electronic device may associate a tier with the display of each speakable element. The electronic device may then provide voice feedback for displayed speakable elements based on the associated tier. To reduce the complexity in designing the voice feedback system, the voice feedback features may be integrated in a Model View Controller (MVC) design used for displaying content to a user. For example, the model and view of the MVC design may include additional variables associated with speakable properties. The electronic device may receive audio files for each speakable element using any suitable approach, including for example by providing a host

device with a list of speakable elements and directing a text to speech engine of the host device to generate and provide the audio files.
MainClaim: A method for providing voice feedback to a user of an electronic device, comprising:displaying a plurality of elements;identifying at least two of the plurality of elements for which to provide voice feedback;determining tiers associated with the display of each of the identified at least two plurality of elements; andproviding voice feedback for the identified at least two plurality of elements in an order of the determined tiers.

6,714,797	System and method for the transfer of digital data to a mobile device	Nokia Corporation	Rautila; Heikki	455	H04M	20000517	0	100%	☐

Abstract: A system, method and computer program for ordering, paying for and download digital products to a mobile device in a cost-effective manner. The mobile device includes a short range transceiver and a network transceiver. The mobile device accesses electronic shop server web sites which contain digital products for sale and hotspot network locations where these digital products may be downloaded to the mobile device via the short range transceiver. The hotspot network locations contain a hotspot device for transmitting the digital products to the mobile devices via the low power radio frequency signal of the short range transceivers when the mobile device has detected the low power radio frequency signal. Using this system, method and computer program, a user of a mobile device may download large amounts of digital data without incurring telephone or cellular phone charges.
MainClaim: A method of ordering and downloading digital products into a mobile device, said method comprising:

accessing by the mobile device, an electronic shop server through a mobile network and ordering a digital product from the electronic shop server;

providing information through the mobile network to the mobile device identifying at least one hotspot network location where the ordered digital product may be downloaded into the mobile device via a low power radio frequency signal;

detecting, by the mobile device, the presence of a low power radio frequency signal from a signal source within one of the identified hotspot network locations; and

downloading the ordered digital product into the mobile device via the detected low power radio frequency signal.

2010/0125492	System and method for providing contextual advertisements according to dynamic pricing scheme	Apple Inc.	Lin; Gloria | Rosenblatt; Michael	705	G06Q	20081114	1	92%	☐

Abstract: Systems, methods, and devices for providing electronic advertisements according to a dynamic pricing scheme are provided. For example, a method for providing an electronic advertisement according to a dynamic pricing scheme may include transmitting an advertisement to an electronic device belonging to a user and receiving marketing factors indicating a likelihood that the user will be receptive to the advertisement. The advertisement may be configured for display on the electronic device and at least one of the marketing factors may be received from the electronic device. A price for providing the advertisement to the target user may be determined based on the marketing factors.
MainClaim: A method comprising:transmitting an advertisement from a first electronic device to a second electronic device, wherein the second electronic device belongs to a user and wherein the advertisement is configured for display on the second electronic device;receiving onto the first electronic device one or more marketing factors indicating a likelihood that the user will be receptive to the advertisement, wherein at least one of the one or more marketing factors is received from the second electronic device; anddetermining a price to charge an advertiser for transmitting the advertisement to the user, wherein the price is determined based at least in part on the one or more marketing factors.

6,920,486	Method and apparatus for enabling synchronizing data in different devices having different capabilities and unmatched data fields	Nokia Corporation	Kiiskinen; Arto	709	G06F	20020520	0	100%	☐

Abstract: A method and apparatus by which a user of two or more client devices (**10** **11**) each hosting a data store (**10***c* **11***c*) can have the data stores kept synchronized by a server (**12**) (in some cases operated as a synchronizing service) in a way acceptable to the user even though at least one of the two data stores (**10***c*) includes a data component (such as a field of a record) that is not in the other data store (**11***c*) (or for which a correspondence from the one data store (**10***c*) to the other data store (**11***c*) in respect to the data component has not yet been set, including possibly a null correspondence). Any such so-called problem field is monitored by a sync field scanner (**12***g*) usually hosted by the server, which alerts the user that a data component is a problem field only when the user first provides a value for the data component. The invention provides that, if possible, the sync field scanner (**12***g*) automatically suggests to the user how to accommodate the problem field that occurs in one data store (**10***c*) but not in the data store (**11***c*).
MainClaim: A method by which a first client data store (**10***c*) hosted by a first client device (**10**) is synchronized with respect to a second client data store (**11***c*) hosted by a second client device (**11**) by synchronizing the two client data stores (**10***c* **11***c*) with respect to a server data store (**12***c*) hosted by a server device (**12**), the server having an established connection with the client devices, the two client data stores (**10***c* **11***c*) each including various data fields,

the method characterized by:

forming (**2339**) structure information indicative of the structure of the two client data stores (**10***c* **11***c*) in respect to at least one data field of the first client data store (**10***c*), for which the second client data store (**11***c*) does not have either one corresponding data field or does not have two or more data fields that in combination correspond to the at least one data field;

detecting (**34**) by the server (**12**) or the first client device (**10**) a use of the at least one data field in the first client data store (**10***c*); and

setting (**36**) a correspondence of the at least one data field in the first client data store (**10***c*) in respect to the second client data store (**11***c*), in order for the at least one data field in the first client data store to be used by the second client.

2008/0034009	METHOD AND SYSTEM FOR USING GLOBAL EQUIVALENCY SETS TO IDENTIFY DATA DURING PEER-TO-PEER SYNCHRONIZATION	APPLE COMPUTER, INC.	FREEDMAN; GORDIE | NILO; BRUCE D.	707	G06F	20060804	1	93%	☐

Abstract: Systems and methods for synchronization including the use of a global equivalency identification datum or set of datum. A universally unique identification datum may be associated with each independently created associated data set. In some embodiments, a synchronization server software element may be responsible for maintaining synchronization for a plurality of clients, including software elements or devices. A record believed to be new by the software elements may verify that the record is actually new. In some embodiments, verification of the record's newness involves assuming that the local ID is a global identification datum and comparing that datum to the all the sets of datum that the Sync-Server knows about. The synchronization server software element may use a table to hold information for all of the records known to that element. In some embodiments these records may have been deleted in the past.
MainClaim: A method for operating a synchronization server installed and running on a first system, the first system having stored thereon one or more current associated data sets each having associated therewith a global equivalency identification datum (GID), the method comprising:receiving from a client an associated data set having associated therewith a first GID;identifying the received first associated data set as one of new or old by determining if the first GID of the received first associated data set is equivalent to a second GID of one of the current associated data sets;identifying each new associated data set as one of truly new or independently created by checking at least one identity key of the received first associated data set against at least one identity key of at least one current associated data set;upon identifying the received first associated data set as independently created, associating the received and current associated data sets as corresponding to each other.

2010/0082732	Trickle Sync Protocol	Apple Inc.	Guenther; Carsten | McCarthy; Brendan A.	709	G06F	20080929	2	93%	☐

Abstract: Among other things, techniques and systems are disclosed for providing trickle syncing. In one aspect, a system includes a data repository to store one or more data records and a server in communication with the data repository. The server is designed to access the data repository in response to a user request to perform at least one of the following: access the one or more data records, add a data record, and modify the one or more data records. The system also includes a client application in communication with the server. The client application is designed to receive the user request through a client process; encapsulate a protocol that provides communications between the client process and the server; and forward the received user request to the server using the encapsulated protocol.
MainClaim: A system comprising:a data repository configured to store one or more data records;a server in communication with the data repository, wherein the server is configured to access the data repository in response to a user request to perform at least one of the following:access the one or more data records,add a data record, andmodify the one or more data records; anda client application comprising a protocol library in communication with the server, the client application configured to:receive the user request through a client process,encapsulate a protocol that provides communications between the client process and the server, andforward the received user request to the server using the encapsulated protocol.

2009/0228509	Synchronization server process	Apple Inc.	McCarthy; Brendan A. | Guenther; Carsten	707	G06F	20080304	2	93%	☐

Abstract: Among other things, techniques and systems are disclosed for providing sync server process. Processing data sync sessions includes processing a request to initiate a sync session from one or more clients to update one or more data records that include one or more data items. The one or more clients are selectively identified as one of a trusted client and an untrusted client based on one or more properties of the sync session, wherein the trusted client is configured to support all dataclasses defined by the server. The one or more clients are detected as being configured to support field level differencing that sends changed data items only for the one or data records or record level differencing that sends all of the data items included in the one or more data records.
MainClaim: A method performed at a server comprising:processing a request to initiate a sync session from one or more clients to update one or more data records that include one or more data items;selectively identifying the one or more clients as one of a trusted client and an untrusted client based on one or more properties of the sync session, wherein the trusted client is configured to support a schema defined by the server for the one or more data records; anddetecting whether the one or more clients are configured to support either field level differencing that sends changed data items only for the one or more data records or record level differencing that sends all of the data items included in

the one or more data records.

7,496,947	Cache device and method for generating a virtual radio or television broadcast	Nokia Corporation	Meyers; Stephan	725	H04N	20000228	0	100%	☐

Abstract: Method for generating a virtual radio or television broadcast by downloading data, including content, information, and advertising, in any order from a Web site on the Internet. The data is downloaded to a device that is preferably portable, such an MP3 player or a mobile phone, and can be connected intermittently to the Internet over a wireless connection. Software loaded on the device uses an algorithm, specified by a user or otherwise, to organize the downloaded data into a particular order, such as into a conventional radio or television-style broadcast format. User data and preferences can also be uploaded to the Web site to influence the type of data that is downloaded. A virtual periodically-updated newscast can be similarly generated.
MainClaim: A method for generating a virtual broadcast on a virtual broadcast device, the method comprising: connecting the virtual broadcast device to a Web site over a wireless connection, the virtual broadcast device being a mobile phone; downloading and storing data comprising content and other information to be integrated into the virtual broadcast from the Web site to the virtual broadcast device in any order, the content comprising songs and the other information comprising at least one of introductions to the songs, advertisements, weather information, and news; organizing the data on the virtual broadcast device into a particular order for the virtual broadcast according to a selected algorithm provided on the virtual broadcast device after all of the data for the virtual broadcast is downloaded from the Web site, whereby the virtual broadcast device is disconnectable from the Web site during said step of organizing; presenting, by the virtual broadcast device, the virtual broadcast to the user; applying a ranking, by a user using the virtual broadcast device, to at least one of the songs in the virtual broadcast while the at least one of the songs is being presented in said step of presenting, the user ranking influencing the probability of playing the at least one song in the virtual broadcast; and adjusting, by the virtual broadcast device, the virtual broadcast in accordance with the user ranking so that the number of times that at least one song is played within a predetermined time period is adjusted based on the user ranking.

2010/0125351	Ordering A Playlist Based on Media Popularity	Apple Inc.	Davydov; Anton	700	G06F	20081114	3	95%	☐

Abstract: This is directed to systems and methods for ordering a playlist of media items. An existing playlist can include media sharing some characteristics, where some of the media items are unfamiliar to the user. To provide the user with a sense of the unfamiliar media items, the electronic device can order the playlist media items based on a familiarity or popularity measure. For example, the electronic device can determine the chart rankings of each media item in the playlist, and play back the media items in the order of chart ranking. This may allow a user to first listen or watch the most familiar or popular media items and get a sense for the less familiar or popular media items in the playlist.
MainClaim: A method for ordering a playlist of media items, comprising:receiving a user selection of a plurality of media items;retrieving for each of the plurality of media items a familiarity value indicative of how familiar each of the plurality of items is from a remote familiarity index; andordering the plurality of media items based on the retrieved familiarity value.

2010/0010648	AUTO-STATION TUNING	Apple Inc.	Bull; William | Rottler; Ben	700	G06F	20080909	2	94%	☐

Abstract: In various embodiments, a media player or portable media device can enable a user to navigate and discover content or other media assets. The media player may analyze broadcasts and other content streams to determine currently playing and forthcoming content. The media player may switch from one source of content to another to find content that matches user preferences or criteria. The media player may generate playlists based on the matching content, and switch between sources of the matching content automatically. In some embodiments, the media player may receive user input to browse content using a navigation stream. Content associated with stations within the navigation stream may be output. As if the user were tuning a radio dial, the media player may determine what content to played back for each station. The media player may procure content and generate playlists to represent each station focus on by the user.
MainClaim: A method for selecting content performed by a media player receiving a plurality of content streams, the method comprising:receiving information indicative of selection criteria at the media player;receiving information associated with the plurality of content streams;analyzing the information associated with the plurality of content streams at the media player to identify content within the plurality of content streams that satisfies the selection criteria; andenabling reception of one or more of the plurality of content streams at the media player to receive the identified content within the one or more content streams that satisfies the selection criteria.

2008/0066099	Media systems with integrated content searching	APPLE COMPUTER, INC.	Brodersen; Rainer | Goldeen; Rachel Clare | Pacurariu; Mihnea Calin | Ma; Jeffrey	725	H04N	20061012	1	94%	☐

Abstract: Systems and methods for providing related commercial content to a user. Systems and methods can include extraction or development of data from metadata and searching for related commercial content based upon the extracted or developed data.
MainClaim: A media system, comprising:a video input operable to receive video content from a content provider;a network interface operable to send content requests and to receive commercial content from a commercial content provider;a metadata input operable to receive metadata from a metadata provider, the metadata being associated with video content or the commercial content;a correlation engine operable to extract at least a portion of the metadata associated with the video content or the commercial content and to request related commercial content using the network interface, the related commercial content being based upon the extracted portion of metadata and input received from a user.

	Using a mobile								

7,203,479	station for productivity tracking	Nokia Corporation	Deeds; Douglas	455	H04M	20030502	0	100%	☐

Abstract: A system and method for tracking productivity using a portable communication device such as a mobile station. The mobile station includes a memory storage unit for storing information related to project profiles. When a communication activity is initiated a timer is started to measure the amount of time that the activity consumes, and queries an activity table to determine whether an identifier associated with the activity has a profile association. If so, an event record is made of the profile and the type of communication activity. When the activity is terminated, the event record is supplemented with the duration of the activity. If there is no profile associated with an activity identifier associated with a current activity, then the user may be queried to determine whether an association should be created. The event records may be loaded onto a PC for storage for further processing or to a report generating device for the generation of an appropriate report.
MainClaim: A method for tracking productivity using a mobile station, said method comprising the steps of: storing a list of contacts in the mobile station; storing on the mobile station at least one project profile corresponding to a contact on the list of contacts; associating a mobile-station event with the at least one project profile of the contact; detecting the occurrence of the mobile station event; and creating an activity record responsive to the detecting, the activity record having productivity information corresponding to the mobile station event associated with the contact.

2009/0170492	User-programmed automated communications	Apple Inc.	Lee; Michael M.	455	H04M	20071228	5	93%	☐

Abstract: A communications device may be programmed to initiate a communications operation when a particular condition is met. The user may set any suitable condition, including for example a date and time, location, event, received or sent communications operation, or any other suitable criteria. The user may select any suitable contact method for the communications operation, including for example telephone, voicemail, email, text message, chatting, fax, or any other suitable method.
MainClaim: A method for scheduling a communications operation to be performed by a communications device, the method comprising:receiving a condition for performing the scheduled communications operation;determining whether the condition is satisfied; andperforming the scheduled communications operation in response to determining that the received condition is satisfied.

7,422,145	Mobile communication terminal and method	Nokia Corporation	Nurmela; Marja-Leena | Tuorila; Heini | Reed; Dominick	235	G06K	20060508	0	100%	☐

Abstract: A method for providing a user interface of a mobile communication terminal having a tap sensitive sensor and a display. The method may include: detecting a first tap in a first direction of the mobile terminal using the tap sensitive sensor; determining a first user input, utilizing the first tap in the first direction; and as a response to the first user input, executing a first set of software code corresponding to the first user input and serving to control at least one display related aspect of the mobile communication terminal. Corresponding mobile communication terminals and computer program product are also presented.
MainClaim: A method for providing a user interface of a mobile communication terminal comprising a tap sensitive sensor and a display, said method comprising: detecting a first tap in a first direction of said mobile terminal using said tap sensitive sensor; determining a first user input, utilizing said first tap in said first direction, wherein said first direction is, within a margin of error, perpendicular to said display; as a response to said first user input, executing a first set of software code corresponding to said first user input and serving to control at least one display related aspect of said mobile communication terminal; and wherein said first set of software code comprises code for illuminating said display.

2008/0319562	SINGLE USER INPUT MECHANISM FOR CONTROLLING ELECTRONIC DEVICE OPERATIONS	Apple Inc.	Forstall; Scott	700	G06F	20080506	1	92%	☐

Abstract: A unique input mechanism for controlling several operations of an electronic device is provided. Using the unique input mechanism, which may be the single input mechanism for providing user inputs to the electronic device, a user may provide different inputs or combinations of inputs to control different operations based on the current mode or capacity of the electronic device. For example, a single, short click of a button may control a media operation (e.g., play/pause) in a media mode, and the same input may control a telephony operation (e.g., initiate/terminate call) in a telephony mode. In some embodiments, different inputs may be associated with different types of operations. The unique input mechanism may include, for example, a button, a switch, a key, or an actuator.
MainClaim: A method for using the same unique user input mechanism to control a plurality of electronic device operations, comprising:receiving a first input with the unique user input mechanism for controlling a media operation; andreceiving a second input with the unique input mechanism for controlling a communications operation, wherein the first input and the second input are different.

7,450,966	Method and device for storing and accessing personal information	Nokia Corporation	Vanska; Marko | Nordman; Ian | Granholm; Joakim | Jutila; Vesa	455	H04Q	20060410	0	100%	☐

Abstract: Basic personal data of an individual is stored as different data files based on content or intended use. The selection of personal data for inclusion in a data file may be performed in accordance with service provider requests or by the end user, preferably with the assistance of templates. Each data file is assigned a unique identifier and is preferably stored in a network server (or, alternatively, in the user's mobile device). The data files may be organized into groups according to content or intended use. For each of the stored files, a graphical symbol is stored in the user's mobile device. When displayed to the user, the symbol preferably resembles a card. Moreover, each group of data files is preferably displayed as a pack of cards. In this manner, the organization of the cards is such that the user can easily

select a card needed to obtain a service.
MainClaim: An apparatus comprising: a memory having program code stored thereon; and a processor disposed in communication with the memory for carrying out instructions in accordance with the stored program code, wherein the program code, when executed by the processor, causes the processor to perform: storing a plurality of card representations, wherein each of the card representations is associated with a plurality of data items; displaying the plurality of card representations; receiving a selection of one of the plurality of card representations; and transmitting a plurality of data items associated with the selected one of the card representations to a service provider to obtain a service.

2010/0082445	Smart menu options	Apple Inc.	Hodge; Andrew | Rosenblatt; Michael | Mikhak; Amir M. | Lin; Gloria | Nakajima; Taido L.	705	G06Q	20080930	2	92%	☐

Abstract: Systems and methods are provided that allow for a portable electronic device to provide smart menus to a user based on a context of a transaction. Specifically, the method of using a portable electronic device may include opening a near field communication (NFC) channel with a point-of-purchase device and providing a smart menu based on a determined context. The portable electronic device may be configured to determine the context based at least in part upon acquiring sales transaction information for the point-of-purchase device. Additionally, the portable electronic device may be configured to determine the context based at least in part upon acquiring vendor identification information.
MainClaim: A method of using a portable electronic device comprising:opening a wireless communication channel with a point-of-purchase device;determining a location of the device; andproviding a payment options based on the location of the device.

7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	Schohn; Gregory C. | Berger; Adam L. | Romero; Richard D.	715	G06F	20010508	0	100%	☐

Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed. Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.
MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

2008/0307301	Web Clip Using Anchoring	APPLE INC.	Decker; Kevin | Sullivan; John | Harrison; David	715	G06F	20070608	2	94%	☐

Abstract: Methods, computer program products, systems and data structures for generating a signature for a portion or portions of a content source are described. The signature can be generated by identifying a portion or portions of a content source, and determining a signature that defines the portion or portions. If the source is updated, the signature can be retrieved and compared to elements in the updated source. If an element in the updated source matches information included in the signature, content corresponding to the matching element is displayed.
MainClaim: A method comprisingidentifying a portion of a structure of a document;determining a signature associated with the portion; andstoring the signature.

7,031,931	Portable device attached to a media player for rating audio/video contents	Nokia Corporation	Meyers; Stephan	705	G06Q	20000330	0	100%	☐

Abstract: A portable rating apparatus for rating one of audio and video content. The apparatus includes a user-manipulable control dedicated for generating a signal indicating a rating of a media content. The rating corresponds to one of a plurality of categories of preferences. A processor, operatively connected to the user-manipulable control, receives the signal from the user-manipulable control and associates the rating with the media content. A memory device, operatively connected to the processor, stores the rating associated with the media content.
MainClaim: A portable media player and rating apparatus, comprising:

a user-manipulable control dedicated for generating a signal indicating a user-supplied rating of a currently played media content in response to a user-supplied rating, the user-supplied rating corresponding to one of a plurality of predefined categories of preferences; and

the portable media player being a handheld device and having a memory device and a processor arranged in the portable media player, said memory device arranged for storing media contents and a ratings list comprising a list of

user supplied ratings associated with the stored media contents, and

said processor being operatively connected to said user-manipulable control and to said memory device for selectively retrieving the stored media contents from said memory device and playing the stored media contents at the portable media player, for receiving the signal from said user-manipulable control, and for associating the user-supplied rating indicated by the signal with the currently played media content, wherein said processor is further operable for ranking the media content in response to the user-supplied ratings in the ratings list and selectively retrieving and playing media content in said memory based on the user-supplied ratings in the ratings list, and said user-manipulable control includes input controls for indicating a positive rating and a negative rating, said processor being operative to move the currently playing content toward the top of the ratings list by a first predetermined amount of slots if the positive rating is indicated and move the currently playing content toward the bottom of the ratings list by a second predetermined amount of slots if the negative rating is indicated, and wherein said processor is further operable for continuously updating a user-supplied rating of the media content based on signals input by the user during subsequent playing of the media content.

2010/0125351	Ordering A Playlist Based on Media Popularity	Apple Inc.	Davydov; Anton	700	G06F	20081114	3	95%	☐

Abstract: This is directed to systems and methods for ordering a playlist of media items. An existing playlist can include media sharing some characteristics, where some of the media items are unfamiliar to the user. To provide the user with a sense of the unfamiliar media items, the electronic device can order the playlist media items based on a familiarity or popularity measure. For example, the electronic device can determine the chart rankings of each media item in the playlist, and play back the media items in the order of chart ranking. This may allow a user to first listen or watch the most familiar or popular media items and get a sense for the less familiar or popular media items in the playlist.
MainClaim: A method for ordering a playlist of media items, comprising:receiving a user selection of a plurality of media items;retrieving for each of the plurality of media items a familiarity value indicative of how familiar each of the plurality of items is from a remote familiarity index; andordering the plurality of media items based on the retrieved familiarity value.

2010/0010648	AUTO-STATION TUNING	Apple Inc.	Bull; William | Rottler; Ben	700	G06F	20080909	2	93%	☐

Abstract: In various embodiments, a media player or portable media device can enable a user to navigate and discover content or other media assets. The media player may analyze broadcasts and other content streams to determine currently playing and forthcoming content. The media player may switch from one source of content to another to find content that matches user preferences or criteria. The media player may generate playlists based on the matching content, and switch between sources of the matching content automatically. In some embodiments, the media player may receive user input to browse content using a navigation stream. Content associated with stations within the navigation stream may be output. As if the user were tuning a radio dial, the media player may determine what content to played back for each station. The media player may procure content and generate playlists to represent each station focus on by the user.
MainClaim: A method for selecting content performed by a media player receiving a plurality of content streams, the method comprising:receiving information indicative of selection criteria at the media player;receiving information associated with the plurality of content streams;analyzing the information associated with the plurality of content streams at the media player to identify content within the plurality of content streams that satisfies the selection criteria; andenabling reception of one or more of the plurality of content streams at the media player to receive the identified content within the one or more content streams that satisfies the selection criteria.

6,721,871	Method and apparatus for synchronizing data stores with respect to changes in folders	Nokia Corporation	Piispanen; Jussi | Sahinoja; Mikko	712	G06F	20020402	0	100%	☐

Abstract: A method using SyncML, or other similar markup language, by which two devices (11 12) synchronize how data is organized in respective data stores (11c 12c) maintained by the devices (11 12), and devices (11 12) operating according to the method as well as a corresponding computer program by which either of the devices (11 12) is operable according to the method. According to the method, the two devices (11 12) synchronize their respective data stores (11c 12c) with respect to folders for containing data units and possibly other folders by steps (31e 31j) of exchanging messages (21) that include data identification elements (28 29) that refer to the folders in order to be able to synchronize the data stores (11c 1 '2c) with respect to the folders, with the data identification elements (28 29) provided in the message external to any reference to data units.
MainClaim: A method, for use by a first sync agent (11b 12b) operative in association with a first data store (11c 12c) and by a second sync agent (11b 12b) operative in association with a second data store (11c 12c), by which the first data store (11c 12c) is synchronized with the second data store (11c 12c), the data stores (11c 12c) each being used for storing data as data units in folders by a first and second respective application (11a 12a) distinct from the first and second sync agents (11b 12b), the folders in combination defining a data structure, the method comprising:

a step (31a) in which the first and second sync agents (11b 12b) establish a transport connection (14) for enabling communication between the first and second sync agents (11b 12b); and

a step (31e 31j) in which the second sync agent (11b 12b) communicates via the transport connection (14) a message (21) to the first sync agent (11b 12b), the message (21) expressed using a markup language and having at least one data identification element (2627) embedded in a non-data element field of a protocol command element;

wherein information about a change in the data structure of the first or second data store (11c 12c) includes identification of folders, in the information is transmitted in said message; and

further wherein said information about a change in the data structure of the first or second data store (11c 12c) is placed in the at least one data identification element (2627).

2010/0082732	Trickle Sync Protocol	Apple Inc.	Guenther; Carsten | McCarthy; Brendan A.	709	G06F	20080929	2	94%	☐

Abstract: Among other things, techniques and systems are disclosed for providing trickle syncing. In one aspect, a system includes a data repository to store one or more data records and a server in communication with the data repository. The server is designed to access the data repository in response to a user request to perform at least one of the following: access the one or more data records, add a data record, and modify the one or more data records. The system also includes a client application in communication with the server. The client application is designed to receive the user request through a client process; encapsulate a protocol that provides communications between the client process and the server; and forward the received user request to the server using the encapsulated protocol.
MainClaim: A system comprising:a data repository configured to store one or more data records;a server in communication with the data repository, wherein the server is configured to access the data repository in response to a user request to perform at least one of the following:access the one or more data records,add a data record, andmodify the one or more data records; anda client application comprising a protocol library in communication with the server, the client application configured to:receive the user request through a client process,encapsulate a protocol that provides communications between the client process and the server, andforward the received user request to the server using the encapsulated protocol.

2009/0228509	Synchronization server process	Apple Inc.	McCarthy; Brendan A. | Guenther; Carsten	707	G06F	20080304	2	93%	☐

Abstract: Among other things, techniques and systems are disclosed for providing sync server process. Processing data sync sessions includes processing a request to initiate a sync session from one or more clients to update one or more data records that include one or more data items. The one or more clients are selectively identified as one of a trusted client and an untrusted client based on one or more properties of the sync session, wherein the trusted client is configured to support all dataclasses defined by the server. The one or more clients are detected as being configured to support field level differencing that sends changed data items only for the one or data records or record level differencing that sends all of the data items included in the one or more data records.
MainClaim: A method performed at a server comprising:processing a request to initiate a sync session from one or more clients to update one or more data records that include one or more data items;selectively identifying the one or more clients as one of a trusted client and an untrusted client based on one or more properties of the sync session, wherein the trusted client is configured to support a schema defined by the server for the one or more data records; anddetecting whether the one or more clients are configured to support either field level differencing that sends changed data items only for the one or more data records or record level differencing that sends all of the data items included in the one or more data records.

7,480,567	Displaying a map having a close known location	Nokia Corporation	Suomela; Riku | Lakkala; Harri | Salminen; Ilkka	701	G01C	20040924	0	100%	☐

Abstract: A system and method is provided for displaying a map having a close known location and a destination and for providing navigation recommendations for traveling from the close known location to the destination. A user may use a mobile device to submit a request for navigation instructions for navigating from a starting point to a destination. The request may be submitted to a web server, to the mobile device itself, or to another device that can provide navigation instructions. The web server/mobile device or other device determines a recommended route based on the starting point and the destination, and attempts to locate a close known location to the destination near the recommended route. Navigation instructions are provided to the user including directions from the close known location to the destination.
MainClaim: An apparatus comprising: a display; and a processor programmed to perform actions comprising: receiving a request for navigation instructions for navigating from a starting point to a destination point; displaying information on the display identifying a first known location for a user of the apparatus, the first known location being retrieved from a database having an indication that the first known location is known to the user, the first known location being different from the starting point; and displaying first navigation instructions on the display for navigating from the first known location to the destination without displaying instructions for navigating from the starting point to the first known location.

2009/0005964	Intelligent Route Guidance	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	701	G01C	20080125	2	92%	☐

Abstract: Intelligent route guidance can include deriving one or more routes based on traffic, historical data and/or preference data associated with route progressions implicated by the one or more routes. The route guidance can provide one or more recommended routes, which can be presented to a user for navigation purposes.
MainClaim: A method comprising:identifying destination information associated with a mobile device;identifying one or more routes comprising a plurality of route progressions based on a current location of the mobile device and the destination information;retrieving route information associated with the plurality of route progressions, the route information comprising user preferences and traffic information associated with the plurality of route progressions;analyzing the plurality of route progressions based on the route information; andpresenting one or more routes to the user based on the analysis.

2009/0005965	Adaptive Route Guidance Based on Preferences	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	701	G01C	20080125	2	92%	☐

Abstract: Adaptive route guidance can include analyzing route progressions associated with one or more routes based on multiple user preferences. The adaptive route guidance can provide one or more preferred routes based on the user preferences including those derived from historical selection or use, which can be presented to a user for navigation purposes.
MainClaim: A method comprising:receiving a plurality of preferences associated with a user;identifying destination information associated with the user;identifying one or more potential routes comprising a plurality of route progressions based on a current location and the destination information;analyzing the plurality of route progressions based on the plurality of preferences associated with the user; andpresenting one or more preferred routes to the user based on the analysis.

2009/0005082	DISFAVORED ROUTE PROGRESSIONS OR LOCATIONS	Apple Inc.	FORSTALL; SCOTT | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080125	2	92%	☐

Abstract: Adaptive route guidance can include analyzing route progressions associated with one or more routes based on multiple user preferences. The adaptive route guidance can provide one or more preferred routes based on the user preferences, which can be presented to a user for navigation purposes.
MainClaim: A method comprising:identifying one or more preferences comprising one or more disfavored route progressions associated with a user;identifying destination information associated with a user;identifying one or more potential routes comprising a plurality of route progressions based on a current location and the destination information;analyzing the plurality of route progressions associated with the one or more potential routes based on the disfavored route progressions associated with the user; andpresenting one or more routes to the user based on the analysis.

7,305,626	Method and apparatus for DOM filtering in UAProf or CC/PP profiles	Nokia Corporation	Tiku; Siddharth	715	G06F	20020528	0	100%	☐

Abstract: A method by which an application (22a 21a) on an origin server (22), or any other intermediary entity in an end-to-end network architecture connecting a client device (20) to a content provider entity, provides content to the client device (20) adapted to the client device (20) based on profile information regarding the client device (20), characterized by: the application (22a 21a) providing a request (M3' M3'') for the profile information and including in the request profile-reducing information for indicating only a subset of all the profile information; and a filter (22b' 21c) parsing the profile information based on the profile-reducing information, so as to provide as a response (M6' M6'') the indicated subset of all the profile information. The invention provides a document object module (DOM) filtering language (DFL) and corresponding application DFL parser (22b' 21c) for determining the reduced profile information, given an indication of what profile information is needed by the application (22a 21a).
MainClaim: A method by which an application hosted by an entity responsible for content adaptation, adapts content requested by a client device so as to be suitable for display by the client device based on profile information regarding the client device, comprising: the application providing a request for the profile information and including in the request profile-reducing information for indicating a subset of the profile information; a document object model filtering language filter parsing the profile information based on the profile-reducing information, so as to provide as a response the indicated subset of all the profile information; and the application using only the subset of the profile information in adapting the content so as to be suitable for display by the client device.

2008/0307299	Client-side components	Apple Inc.	Marchant; Benoit | Jolley; Charles	715	G06F	20070608	1	93%	☐

Abstract: Generating web pages dynamically at a client is disclosed. In some embodiments, when a web application or other code determines that a page is to be displayed, a set of components required to generate the page dynamically at the client is determined. Any components not already available at the client is obtained from a server. In some embodiments each component includes a display portion and may include one or both of a set of binding declarations and a logic portion. The components are parsed at the client and used to generate the page dynamically at the client, e.g., by generating associated portions of the document object model (DOM), retrieving JavaScript™ or other functions/classes and linking them to the respective portions of the DOM to which they correspond, and using the browser to render the page so created.
MainClaim: A method for generating a page, comprising:receiving at a client a set of one or more components, each component being associated with at least a part of the page and each component comprising at least one of a display definition portion and a logic portion; andusing the set of one or more components to generate the page dynamically at the client, including for at least one part of the page using a display definition portion of a component associated with that part of the page to generate a display definition for that part of the page and a logic portion of the component to implement a behavior associated with that part of the page.

7,085,649	Electronic organizer	Nokia Mobile Phones, Ltd.	Baur; Reinhold | Valtonen; Tero | Keinonen; Turkka | Koppinen; Anne | Kirjavainen; Anne | Roque-Cerna; Maximiliano | Lehn; Karsten | Pazina; Markus | Theimer; Wofgang | Kespohl; Klaus | Buth; Peter | Conrady; Cordula	701	G01C	20010606	0	100%	☐

			| Rastuttis; Stephan | Fuhrmann; Thomas | Asikainen; Minna							

Abstract: Electronic organiser (10) with a calendar (11) in which appointments at least according to date, time and an individual description, for example a person to be visited, are variable. If the organiser (10) is provided with an interface (22) which can exchange data in respect of the appointments with an interface (22) existing on another device (21), the data recorded in the calendar (11) can be used to run the other device or the electronic organiser (10) can be controlled by the other device. Thus for example data recorded in the calendar (11) can be used by a navigation system for faster input of the destination, or for example departure appointments can be changed by the other device according to the traffic or other situations.
MainClaim: Electronic organiser (10) with a calendar (11) in which appointments at least according to date, time and an individual description are variable; and an interface (12) which can exchange data in respect of the appointment data bidirectionally with an interface (22) existing on a navigation system; wherein the data filed in the calendar (11) can be used in the navigation system to calculate the route and to estimate a traveling time for the calculated route; and wherein traveling time information is conveyed to the calendar (11) and is recorded therein.

2010/0017118	PARKING & LOCATION MANAGEMENT PROCESSES & ALERTS	Apple Inc.	Dougherty; Casey Maureen	701	G01C	20080716	1	92%	☐

Abstract: Aspects include using present location information for a mobile device and real-time access to sources of data about future constraints pertaining to the present location to establish the occurrence of a future event. Examples include using a present location of the mobile device to infer a vehicle location, accessing a source of data relating to parking regulations at the present location and setting a reminder for avoiding violation thereof. The mobile device can track a present position and adjust an absolute reminder time to account for travel times. The travel times can be arrived at by obtaining data concerning public transportation schedules and present locations of elements of such public transportation. Another example aspect includes correlating a user profile concerning parking requirements with a desired destination area and parking regulations pertinent to the area for guiding a user to potential parking locations.
MainClaim: A method relating to implementing location aware services for mobile device users, comprising:determining a first location based on a location of a first device by machine processing of one or more of GPS signals and triangulation information;retrieving parking regulations, through the first device, from a source of such information pertinent to the first location;algorithmically determining, based on a current time and based on the parking regulations, a timing of an alert to avoid violating the parking regulations pertinent to the first location; andautomatically programming the alert into the first mobile device.

6,910,191	Program guide data selection device	Nokia Corporation	Segerberg; Tomas | Bernhardson; Marcus	715	G06F	20011102	0	100%	☐

Abstract: A digital interactive television set device for selecting program guide data corresponding to available programming content. A processor filters the programming guide data according to different filter categories and also individual filter ranges associated with respective categories, and provides a corresponding display on the television. A graphical user interface provides a horizontal scroll bar with scroll bar elements signifying individual filter ranges of the filter categories, such that when selected individually, scroll bar elements of a vertical scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected horizontal bar element, at least one of the scroll bar elements of the horizontal scroll bar comprising a multiple depiction of more than one of the individual filter ranges of filter categories, whereby an individual one of the filter ranges may be selected from the multiple depiction.
MainClaim: A programming guide data selection device for selecting program guide data corresponding to available programming content, comprising:

a processor operable to filter the programming guide data according to different filter categories and individual filter ranges associated with the respective categories, and

a graphical user interface to provide first and second transversely extending and intersecting scroll bars which each comprise a plurality of scroll bar elements that can be scrolled successively through a focus region positioned at the intersection of the first and second scroll bars,

the scroll bar elements of the first scroll bar signifying individual filter ranges of the filter categories, which are individually selectable by being scrolled into the focus region, such that when selected individually, the scroll bar elements of the second scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected first scroll bar element, said individual program content items being individually selectable by scrolling the second scroll bar to place the element of the second scroll bar corresponding to the program item into the focus region,

at least one of the scroll bar elements of the first scroll bar comprising a multiple depiction of more than one of said individual filter ranges of the filter categories selectable from the multiple depiction individually by being moved into the focus region, and

a viewing region for viewing a program content item selected in the focus region.

	Perspective scale		Brodersen; Rainer | Goldeen; Rachel						

2008/0062128	video with navigation menu	APPLE COMPUTER, INC.	Clare | Pacurariu; Mihnea Calin | Ma; Jeffrey	345	G09G	20061012	1	94%	☐

Abstract: A video system generates a user interface by performing a perspective transition of a video from a first video environment to a second video environment that defines a space and generates a navigation menu in the space.
MainClaim: A method, comprising:displaying video in a first video environment;receiving a first command to display a navigation menu;in response to the first command:displaying the video in a second video environment that is a perspective scale of the first video environment and that defines a space; andgenerating the navigation menu within the space.

2008/0065722	Media device playlists	Apple Computer, Inc.	Brodersen; Rainer | Goldeen; Rachel Clare | Pacurariu; Mihnea Calin | Ma; Jeffrey	709	G06F	20061012	1	94%	☐

Abstract: A video device displays a video event in a view context. In response to a menu command, the video event is displayed in a perspective view context and a playlist is generated adjacent the video event being displayed in the perspective view context.
MainClaim: A method, comprising:associating categories with video playlists;displaying a video event in a first video environment defining a perspective display;displaying the playlists according to the associated categories adjacent the first video environment;receiving a first command to select a playlist;identify corresponding video events for the selected playlist; anddisplaying a list of the corresponding video events adjacent the first video environment.

2008/0062127	Menu overlay including context dependent menu icon	APPLE COMPUTER, INC.	Brodersen; Rainer | Goldeen; Rachel Clare | Pacurariu; Mihnea Calin | Ma; Jeffrey	345	G09G	20061012	1	94%	☐

Abstract: A video device displays video in one of a plurality of contexts in an onscreen display area. In response to the menu command, the video device generates a menu overlay within the onscreen display area while maintaining the video within the menu overlay, and generates within the menu overlay a context icon based on the selected context.
MainClaim: A method, comprising:displaying video in one of a plurality of contents a video environment;receiving a menu command;in response to the menu command, generating a menu overlay within the video enrironment while maintaining the video within the video environment; andgenerating within the menu overlay one or more context icons based on the context in which the video is displayed.

7,640,350	Transferring objects within an ongoing file transfer operation	Nokia Corporation	Bouet; Stephane	709	G06F	20011220	0	100%	☐

Abstract: The invention discloses a method of sending pictures for display individually or as a series of pictures in a mini-clip on a receiving device during a lengthy file transfer. The invention, although not strictly limited to, is particularly suitable for use in a Bluetooth environment using the Object Exchange (OBEX) protocol. In an embodiment of the invention, a picture or series of pictures (710,720,730) are encapsulated within a Application Parameters header of the ongoing long file transfer. When picture data is too large to fit into a single header the data may be segmented and spanned over several headers. The headers contain parameters that define display characteristics such as picture display time and mini-clip or series refresh rate, thereby lending the method particularly well for the display of advertising content.
MainClaim: A method, comprising: transmitting, during an ongoing packet transfer operation in which packets of content are transferred between a sending device and a receiving device, picture data in addition to said content, at least a portion of said picture data for display on a display associated with the receiving device during said ongoing packet transfer, wherein said packet transfer comprises a plurality of packets and at least one of the plurality of packets comprises a payload portion and a separate header portion comprising the at least a portion of said picture data, wherein said picture data is a binary image file having a binary based format used to define transmission of encoded bitmap data; wherein the header portion includes at least one parameter that controls the display of the at least a portion of said picture data on the display associated with the receiving device during the ongoing packet transfer.

7,653,685	Methods and apparatuses for transferring streaming multimedia data and various types of data associated therewith in a network environment	Apple Inc.	Serenyi; Denis | LeCroy; Chris	709	G06F	20060215	1	92%	☐

Abstract: The present invention provides several methods and apparatuses for transmitting multimedia data using streaming media protocols such as real-time transfer protocols (RTP) and real-time streaming protocols (RTSP) in a computer network environment. A request for RTP data is sent from the caching proxy server to the server. The request may be for one specific type of data or multiple unrelated types of data. The server responds to the request indicating its support for the requested data. The caching proxy server determines whether to proceed or terminate the data transmission process based on the response provided by the server. If it is determined to proceed with the data transmission process, the caching proxy informs the server to send the requested data. The server sends the requested data in a body of a RTP packet. The RTP packet uses a RTP Meta-Info payload format, which includes a body and a field header. The field header includes fields to identify the streaming media data, and the field body includes the requested streaming media data.
MainClaim: A machine-implemented method of producing a representation of a streaming media data at a caching

proxy server, the method comprising: transmitting, through a network, a first request for the streaming media data to be delivered to the caching proxy server; transmitting a second request for data associated with the streaming media data including an identifier corresponding to a name of a Real-Time Protocol (RTP) header extension which identifies one of several possible types of data associated with the streaming media data; receiving the streaming media data and storing the streaming media data on a storage device which is capable of being controlled by the caching proxy server; and receiving the data associated with the streaming media data in a packet having the RTP header extension that identifies a type of the data associated with the streaming media data and a body that includes the data associated with the streaming media data.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve | Thrane; Leon	717	G06F	20000714	0	100%	☐

Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.
MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

2008/0307394	Asynchronous load of source dependencies	Apple Inc.	Marchant; Benoit	717	G06F	20070608	3	95%	☐

Abstract: Asynchronous loading of source dependencies is disclosed. An indication is received in the course of executing a script that a source file on which a current class or function depends is not available. Execution of remaining portions of the script, if any, that do not depend on the source file, continues, or other processing tasks are performed if no such portions remain, while the source file is loaded asynchronously.
MainClaim: A method of loading source files, comprising:receiving, in the course of executing a script, an indication that a source file on which a current class or function depends is not available; andcontinuing execution of remaining portions of the script, if any, that do not depend on the source file, or continuing on to other processing tasks if no such portions remain, while the source file is loaded asynchronously.

2008/0307390	Class declaration in a non-class-based programming environment	Apple Inc.	Marchant; Benoit	717	G06F	20070608	2	95%	☐

Abstract: Facilitating declaration of a class or function using a programming language that is not a class-based object-oriented programming (OOP) language is disclosed. A call to a function, defined using the programming language, that has a name that is a near variant of the reserved word "class" is received. In response to the call, a new function that includes, if applicable, the methods and variables of a parent function designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be a super class of the new function and includes one or more methods, variables, or both designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be implemented by the new function is defined programmatically.
MainClaim: A method of facilitating declaration of a class or function using a programming language that is not a class-based object-oriented programming (OOP) language, comprising:receiving a call to a function, defined using the programming language, that has a name that is a near variant of the reserved word "class"; anddefining programmatically, in response to the call, a new function that:includes, if applicable, the methods and variables of a parent function designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be a super class of the new function; andincludes one or more methods, variables, or both designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be implemented by the new function.

2008/0307389	Extending a scripting language to provide an object hierarchy	Apple Inc.	Marchant; Benoit	717	G06F	20070608	2	95%	☐

Abstract: Generating programmatically a pointer to a super implementation of a method in a programming language that is not a class-based object-oriented programming (OOP) language is disclosed. A hierarchy of functions, the hierarchy including one or more parent nodes each representing a parent function and each having one or more child nodes, each child node representing a function that inherits the methods of the corresponding parent node of which it is a child, is traversed until a super implementation of an inherited method is found. A programmatically created pointer to the super implementation is inserted programmatically into a corresponding location in a current function.
MainClaim: A method of generating programmatically a pointer to a super implementation of a method in a programming language that is not a class-based object-oriented programming (OOP) language, comprising:traversing up a hierarchy of functions, the hierarchy including one or more parent nodes each representing a parent function and each having one or more child nodes, each child node representing a function that inherits the methods of the

corresponding parent node of which it is a child, until a super implementation of an inherited method is found; andinserting programmatically into a corresponding location in a current function a programmatically created pointer to the super implementation.

7,150,012	Method and apparatus for accelerating program execution in platform-independent virtual machines	Nokia Corporation	Hill; Tapio	717	G06F	20021015	0	100%	☐

Abstract: A method and apparatus for accelerating program execution in platform-independent systems by eliminating repeated hot spot recognition in virtual machines. Optimization information for programs operable on a target device is stored. It is determined whether stored optimization information exists for a current program available on the target device, and if so, the optimization information associated with the current program is retrieved. The retrieved optimization information is used to identify program code segments earlier identified for optimization processing. Portions of the current program not identified for optimization processing are interpreted via an interpreter, and at substantially the same time, the program code segments identified for optimization processing to native code of the target device are compiled. Using the stored optimization information eliminates the need to analyze the program for program hot spots each time the program is loaded.
MainClaim: A method for increasing execution speed of platform-independent programs on a target device, comprising: determining optimization information for one or more programs during a first execution of the one or more programs on the target device; storing the optimization information for the one or more programs in response to the first execution of the one or more programs; determining whether the stored optimization information exists for a current program; retrieving the optimization information for the current program if the optimization information exists for the current program; using the retrieved optimization information to identify one or more program code segments of the program identified for optimization processing; and interpreting portions of the current program that are not identified for optimization processing, and concurrently compiling the one or more program code segments identified for optimization processing to native code of the target device.

2005/0246554	System and method for creating tamper-resistant code	Apple Computer, Inc.	Batson, James D.	713	H04L	20040430	1	93%	☐

Abstract: A system and method for creating tamper-resistant code are described herein. In one embodiment, the method comprises receiving a first object code block. The method also comprises translating the first object code block into a second code block, wherein the translating includes applying taper-resistance techniques to the first object code block or the second object code block. The method also comprises executing the second object code block.
MainClaim: A method comprising: receiving a first object code block; translating the first object code block into a second object code block, wherein the translating includes applying tamper-resistance techniques to the first object code block or the second object code block; and executing the second object code block.

2010/0058301	SYSTEM AND METHOD FOR BRANCH EXTRACTION OBFUSCATION	Apple Inc.	MYLES; Ginger M. | Lerouge; Julien | Lattner; Tanya Michelle | Farrugia; Augustin J.	717	G06F	20080826	1	92%	☐

Abstract: Disclosed herein are systems, methods, and computer readable-media for obfuscating code. The method includes extracting a conditional statement from a computer program, creating a function equivalent to the conditional statement, creating a pointer that points to the function, storing the pointer in an array of pointers, replacing the conditional statement with a call to the function using the pointer at an index in the array, and during runtime of the computer program, dynamically calculating the index corresponding to the pointer in the array. In one aspect, a subset of instructions is extracted from a path associated with the conditional statement and the subset of instructions is placed in the function to evaluate the conditional statement. In another aspect, the conditional statement is replaced with a call to a select function that (1) calculates the index into the array, (2) retrieves the function pointer from the array using the index, and (3) calls the function using the function pointer. Calls can be routed through a select function before the function pointer is used to call the function evaluating the conditional statement. Each step in the method can be applied to source code of the computer program, an intermediate representation of the computer program, and assembly code of the computer program.
MainClaim: A method of obfuscating code, the method comprising:extracting a conditional statement from a computer program;creating a function equivalent to the conditional statement;creating a pointer that points to the function;storing the pointer in an array of pointers;replacing the conditional statement with a call to the function using the pointer at an index in the array; andduring runtime of the computer program, dynamically calculating the index corresponding to the pointer in the array.

7,322,045	Method of obfuscating computer instruction streams	Apple Inc.	Kiddy; Raymond R.	726	G06F	20040123	1	92%	☐

Abstract: Methods and apparatuses for obfuscating computer instruction streams. In one aspect of the invention, an exemplary method includes breaking each of at least two operative instruction streams into a plurality of parts and interleaving the parts into a new instruction stream. In another aspect of the invention, an exemplary method includes breaking each of at least two operative instruction streams into a plurality of parts and interleaving the parts with obfuscation codes into a new instruction stream. The obfuscation codes interrelate the parts from different instruction streams to prevent reversal of interleaving.
MainClaim: A data processing system, comprising: memory means for storing an obfuscated stream, the obfuscated stream comprising parts which are interleaved, the parts having been taken from at least two operative instruction

streams including a first operative instruction stream and a second operative instruction stream, the first operative instruction streams being compiled from a first source code, the second operative instruction streams being compiled from a second source code separate from the first source code; and processor means for executing the obfuscated stream; wherein the parts include a second part interleaved between a first part and a third part, the second part being of the second operative instruction stream, the first part and the third part being of the first operative instruction stream; wherein the second part is reachable from the first part during the execution; and wherein when the first part and the third part are executed, the second part is also executed.

7,263,691	Parsing structured data	Nokia Corporation	Vehkomaki; Tuomo	717	G06F	20020130	0	100%	☐

Abstract: A method for parsing structured data has the steps of: receiving input data in a first computer language; generating a plurality of tokens according to the input data; building a context by using a grammar syntax comprising a set of rules, the context comprising a plurality of context steps in the form of at least one or more chains of context steps, the step of building the context comprising the sub-steps of: detecting if according to the grammar syntax a token is allowable in the context; and if the token is allowable, creating a new context step corresponding to the token, and the further steps for recovering an unallowable token: identifying a suitable context for the unallowable token in which context the token is allowable; and applying the token in the identified suitable context.
MainClaim: A method for parsing structured data with plural branches comprising the steps of: receiving input data with the plural branches in a first computer language; generating a plurality of tokens according to the input data; and building a context and processing a built context in units of the plural branches by using a grammar syntax comprising a set of rules, wherein the steps of receiving, generating and building occur in parallel across at least a portion of the input data; the context comprising a plurality of context steps in the form of at least one or more chains of context steps, the step of building the context comprising the sub-steps of: detecting if according to the grammar syntax a token is allowable in the context; and if the token is allowable, creating a new context step corresponding to the token; and if the token is unallowable recovering the unallowable token by identifying a suitable context for the unallowable token in which context the token is allowable, and applying the token in the identified suitable context.

2007/0260571	Generating a format translator	Apple Computer, Inc.	Mansfield; Philip Andrew | Levy; Michael Robert	706	G06N	20060419	2	92%	☐

Abstract: Generating code is disclosed. A specification of one or more translation patterns is received. The one or more translation patterns are used to generate at least a portion of code associated with a translator. Using the one or more translation patterns to generate at least a portion of code associated with the translator results in the translator being configured to create a target object model. Creating the target object model includes populating one or more elements of the target object model in a processing order at least in part associated with an order of elements in the one or more translation patterns.
MainClaim: A method of generating code, comprising: receiving a specification of one or more translation patterns; and using the one or more translation patterns to generate at least a portion of code associated with a translator; wherein using the one or more translation patterns to generate at least a portion of code associated with the translator results in the translator being configured to create a target object model, including by populating one or more elements of the target object model in a processing order at least in part associated with an order of elements in the one or more translation patterns.

7,526,790	Virtual audio arena effect for live TV presentations: system, methods and program products	Nokia Corporation	Vesikivi; Petri	725	H04N	20020328	0	100%	☐

Abstract: Audio sensors are located in different parts of an arena and are connected to a server by a wireless or wire connection. The sensors are equipped for reception and transmission of audio sounds for selected locations in the arena. The server provides a frequency divided carrier to the respective sensors. The audio sensors are capable of modulating the carrier frequency as a stereophonic sound in the area of the sensor. The server receives, digitizes, and packetizes the stereophonic sensor signals into a plurality of digital streams, each representative of a sensor location in the arena. The audio streams are combined with the video of an event using digital video broadcasting or via a cable system. The viewers are equipped with a control device linked to a TV for a selection of an audio stream by energizing an icon indicative of an audio stream representative of a position in the arena.
MainClaim: Apparatus, comprising: first stereophonic audio sensors located at a first sensor location in an arena to receive ambient sounds during an interval and produce a first stereophonic stream; second stereophonic audio sensors located at a second sensor location in the arena to receive ambient sounds during the interval and produce a second stereophonic stream; a virtual listening location selected in the arena at a first distance from the first stereophonic audio sensors and a second distance from the second stereophonic audio sensors; calculating a numerical value representative of signal power fading between the audio sensor locations and a selected location; a server coupled to the first and second sensors, for adding to signal values of the first and second stereophonic streams, a compensating signal based on the numerical value for the first and second distances to the virtual listening location, to produce an audio stream representative of audio that a listener would hear during the interval if-located at the virtual listening location in the arena; said server outputting said audio stream and additional audio streams as a plurality of audio streams representative of audio that a listener would hear during the interval if the listener was respectively located at any one of a corresponding plurality of virtual listening locations in the arena; and a transmitter for broadcasting the plurality of audio streams accompanied by a video stream depicting a scene of the arena during the interval; said plurality of audio streams capable of being individually recognized at television receivers receiving the broadcast and displayed with respective selection icons enabling a listener to play respective ones of the plurality of audio streams to hear audio that the listener would hear during the interval if the listener was respectively located at any one of the corresponding plurality virtual listening locations in the arena.

7,565,059	Dynamic variation of output media signal	Apple Inc.	Neuman; Michael	386	H04N	20040528	1	92%	☐

	in response to input media signal								

Abstract: A first input signal, which has a first playback sequence, is resequenced based upon a characteristic of a second input signal. The resequencing occurs analyzing the characteristic in the second input signal, and modifying the first playback sequence of the first input signal based upon the analysis of the characteristic to generate a second playback sequence. Finally, a third signal is output using the second playback sequence.
MainClaim: A method for resequencing a specific first input signal, which has a first playback sequence, based upon at least one characteristic of a second input signal, the method comprising: analyzing the at least one characteristic of the second input signal; modifying the first playback sequence of said first input signal based upon the analysis of the at least one characteristic to generate a second playback sequence; and outputting a third signal comprising the second playback sequence.

6,351,842	Method for producing computer-controlled services	Nokia Telecommunications Oy	Ahmavuo; Pekka | Ala-Rantala; Martti | Narvanen; Pia	717	G06F	19980408	0	100%	☐

Abstract: The invention relates to a method for producing application-specific computer-controlled services. An application-specific program code is generated automatically and an application-specific computer program for providing the service is formed. In order to perform changes more easily than before, the computer program is divided into three groups. The first group is formed only of such a code that remains the same regardless of the application, and the second and the third group are provided with a code produced by the generation in such a way that (a) the second group only includes a code produced by the generation and (b) the third group contains a code produced with the generation that is to be changed by the designer after the generation. The generating device is informed of whether the code to be generated is produced for the second or for the third group.
MainClaim: A method for producing application-specific computer-controlled services for a user, the method comprising:

forming a description file describing an application for an intended service, the description file formed with terms of an application architecture used;

generating automatically an application-specific program code from which an application-specific computer program is formed by using software generating means and by following the terms of the application architecture used; and

running said application-specific computer program in order to provide the user with said intended service;

wherein the forming of the application-specific computer program further comprises dividing the application-specific computer program into different groups in such a way that

a first group (A) is formed only of such a program code that remains the same regardless of the application; and

a second and a third group are provided with a program code produced by said software generating means in such a way that (a) the second group (B) only includes a program code produced by said software generating means and (b) the third group (C) contains such a program code produced with said software generating means that a designer is intended to change after the generation; and

informing the software generating means whether a program code to be generated is produced for the second or for the third group.

2008/0307390	Class declaration in a non-class-based programming environment	Apple Inc.	Marchant; Benoit	717	G06F	20070608	2	94%	☐

Abstract: Facilitating declaration of a class or function using a programming language that is not a class-based object-oriented programming (OOP) language is disclosed. A call to a function, defined using the programming language, that has a name that is a near variant of the reserved word "class" is received. In response to the call, a new function that includes, if applicable, the methods and variables of a parent function designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be a super class of the new function and includes one or more methods, variables, or both designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be implemented by the new function is defined programmatically.
MainClaim: A method of facilitating declaration of a class or function using a programming language that is not a class-based object-oriented programming (OOP) language, comprising:receiving a call to a function, defined using the programming language, that has a name that is a near variant of the reserved word "class"; anddefining programmatically, in response to the call, a new function that:includes, if applicable, the methods and variables of a parent function designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be a super class of the new function; andincludes one or more methods, variables, or both designated, using a syntax that is a near variant of a corresponding class-based OOP syntax, to be implemented by the new function.

2008/0307389	Extending a scripting language to provide an object hierarchy	Apple Inc.	Marchant; Benoit	717	G06F	20070608	2	93%	☐

Abstract: Generating programmatically a pointer to a super implementation of a method in a programming language that is not a class-based object-oriented programming (OOP) language is disclosed. A hierarchy of functions, the hierarchy including one or more parent nodes each representing a parent function and each having one or more child

nodes, each child node representing a function that inherits the methods of the corresponding parent node of which it is a child, is traversed until a super implementation of an inherited method is found. A programmatically created pointer to the super implementation is inserted programmatically into a corresponding location in a current function.
MainClaim: A method of generating programmatically a pointer to a super implementation of a method in a programming language that is not a class-based object-oriented programming (OOP) language, comprising:traversing up a hierarchy of functions, the hierarchy including one or more parent nodes each representing a parent function and each having one or more child nodes, each child node representing a function that inherits the methods of the corresponding parent node of which it is a child, until a super implementation of an inherited method is found; andinserting programmatically into a corresponding location in a current function a programmatically created pointer to the super implementation.

2008/0307394	Asynchronous load of source dependencies	Apple Inc.	Marchant; Benoit	717	G06F	20070608	3	92%	☐

Abstract: Asynchronous loading of source dependencies is disclosed. An indication is received in the course of executing a script that a source file on which a current class or function depends is not available. Execution of remaining portions of the script, if any, that do not depend on the source file, continues, or other processing tasks are performed if no such portions remain, while the source file is loaded asynchronously.
MainClaim: A method of loading source files, comprising:receiving, in the course of executing a script, an indication that a source file on which a current class or function depends is not available; andcontinuing execution of remaining portions of the script, if any, that do not depend on the source file, or continuing on to other processing tasks if no such portions remain, while the source file is loaded asynchronously.

7,353,296	Method for performing data structure conversions	Nokia Corporation	Nuuttila; Petri	709	G06F	20011211	0	100%	☐

Abstract: The invention relates to any conversions in which data of a certain source format are converted into data of a certain target format. The conversions may also be bi-directional. The invention includes a method for performing data structure conversions, wherein a data structure comprises at least two elements located in a predetermined order in the data structure. The data structure is defined by using a definition language, and it is represented as a source bit string. During the conversion the source bit string is converted into a target bit string. The method for performing the data structure conversion handles the data structure elements in the same order as they are located in the data structure without parsing the source bit string. The avoidance of the parsing makes the method more efficient than the prior art methods. In addition, the method decodes each data structure element and encodes it directly into the target bit string. Also the avoidance of unnecessary copying of data makes the method efficient.
MainClaim: A method for performing data structure conversions in a communications system, wherein at least one data structure comprises at least two elements located in a predetermined order in the data structure which is defined for communication by a definition language and represented in the communication as bit strings, and wherein a source bit string conforming to a first format is converted into a target bit string conforming to a second format, characterized in that the method comprises the following steps: browsing the source bit string, identifying in the source bit string each data structure element of the data structure without parsing the source bit string, handling the identified data structure elements in the same order as they are located in the data structure, said handling to include decoding each data structure element from the source bit string and encoding the decoded data structure element directly into the target bit string.

2007/0260571	Generating a format translator	Apple Computer, Inc.	Mansfield; Philip Andrew | Levy; Michael Robert	706	G06N	20060419	2	92%	☐

Abstract: Generating code is disclosed. A specification of one or more translation patterns is received. The one or more translation patterns are used to generate at least a portion of code associated with a translator. Using the one or more translation patterns to generate at least a portion of code associated with the translator results in the translator being configured to create a target object model. Creating the target object model includes populating one or more elements of the target object model in a processing order at least in part associated with an order of elements in the one or more translation patterns.
MainClaim: A method of generating code, comprising: receiving a specification of one or more translation patterns; and using the one or more translation patterns to generate at least a portion of code associated with a translator; wherein using the one or more translation patterns to generate at least a portion of code associated with the translator results in the translator being configured to create a target object model, including by populating one or more elements of the target object model in a processing order at least in part associated with an order of elements in the one or more translation patterns.

6,862,575	Electronic coupon system	Nokia Corporation	Anttila; Akseli | Chande; Suresh | Makipaa; Mikko | Mannisto; Isto	705	G06F	20000817	0	100%	☐

Abstract: A system for issuing electronic coupons. A master coupon is provided by a service which may be copied by customers and placed into their individual electronic wallets. The coupons may have a variable benefit or value which may be established by a variety of parameters. The parameters include a set time period, certain action by the customer, the purchase of specific items, the purchase of specific dollar values, or external parameters such as the score in a baseball game. The coupons may be transferred or recopied by the customer as desired. The customer may gain additional benefits by recopying the coupons to others.
MainClaim: A data processing system for issuing coupons, comprising:

a server for generating master coupons at locations attributable to different merchants and for establishing locations attributable to customers for receiving coupons;

a network connection allowing customers to access master coupons at said merchant locations and for the copying of master coupons at locations as customer coupons;

a server for copying the customer coupon as a child coupon for another customer to provide a shared benefit of the customer coupon to the another customer with the child coupon; and wherein

said customer coupons have a benefit which varies in accordance with properties defined by the master coupon; and

the data processing system modifies the benefit of the customer coupon in response to sharing a benefit of the copied customer coupon with the child coupon.

2010/0082445	Smart menu options	Apple Inc.	Hodge; Andrew | Rosenblatt; Michael | Mikhak; Amir M. | Lin; Gloria | Nakajima; Taido L.	705	G06Q	20080930	2	93%	☐

Abstract: Systems and methods are provided that allow for a portable electronic device to provide smart menus to a user based on a context of a transaction. Specifically, the method of using a portable electronic device may include opening a near field communication (NFC) channel with a point-of-purchase device and providing a smart menu based on a determined context. The portable electronic device may be configured to determine the context based at least in part upon acquiring sales transaction information for the point-of-purchase device. Additionally, the portable electronic device may be configured to determine the context based at least in part upon acquiring vendor identification information.
MainClaim: A method of using a portable electronic device comprising:opening a wireless communication channel with a point-of-purchase device;determining a location of the device; andproviding a payment options based on the location of the device.

2008/0077489	Rewards systems	Apple Inc.	Gilley; Glenn Gregory | Brody; Sarah A. | Ubillos; Randall Hayes | Pacurariu; Mihnea Calin	705	G06Q	20070327	1	92%	☐

Abstract: Rewards systems for permitting a user to motivate one or more other users to perform predetermined activities are provided. A rewards system of the present invention can permit a supervisory user to set up rewards allocation parameters by which the rewards system can automatically distribute rewards to a subordinate user. Once the subordinate user has input data about his activities, the rewards system can determine the appropriate rewards to distribute to the subordinate user account based on the data and the rewards allocation parameters. A rewards system of the present invention also can permit a user to challenge one or more users to a competition. Based on data about the competitors' activities and user-defined allocation parameters, the rewards system can automatically distribute rewards to the user account(s) of victorious competitor(s).
MainClaim: A method for permitting a first user to reward a second user for performing at least one predetermined activity, the method comprising:linking a first user account to a second user account; andrequesting set-up of at least one rewards allocation parameter, wherein each rewards allocation parameter defines a rule by which rewards are distributed automatically between at least the first and second user accounts, wherein the at least one rewards allocation parameter is a function of the at least one predetermined activity.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	0	100%	☐

Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.
MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

			Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory |						

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.	345	G06F	20080411	9	93%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M. J. | Lamiraux; Henri C.	345	G09G	20080411	8	93%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the

one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	92%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.

MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,395,081	Mobile telephone having a rotator input device	Nokia Corporation	Bonnelykke Kristensen; Jakob | Christjansen; Rasmus | Balle; Henrik | Stagsted; Lone | Juul-Jakobsen; Janne | Saxe Knudsen; Christian | Pederson; Thomas	455	H04M	20040330	0	100%	☐

Abstract: A mobile telephone has a display (240) and a rotator input device (250) comprising a rotatable element and capable of generating commands for browsing and selecting objects on the display. It also has a wireless telecommunication interface to a mobile telecommunications network. A processing device is coupled to the display, the rotator input device and the wireless telecommunication interface. A text-handling software application is executable by the processing device. The processing device is configured, in a first operating mode, to provide first user input by way of the rotator input device (250), said first user input including a number sequence representative of a desired telephone number which is to be reached over the mobile telecommunications network, and to use said first user input when establishing a telephone call connection through the wireless telecommunication interface. Moreover, the processing device is configured, in a second operating mode, to provide second user input by way of the rotator input device, said second user input including a character sequence representative of a desired text, and to forward said second user input to the text-handling software application No numeric or alphanumeric character keyboard is involved in neither of the first and second operating modes.

MainClaim: An anparatus comprising: a display; a rotator input device comprising a rotatable element and capable of generating commands for browsing and selecting objects on said display; a wireless telecommunication interface to a mobile telecommunications network; a processing device coupled to said display, said rotator input device and said wireless telecommunication interface; a text-handling software application which is executable by said processing device; and a text prediction engine, wherein the processing device is configured, in a first operating mode, to provide first user input by way of said rotator input device, said first user input including a number sequence representative of a desired telephone number which is to be reached over said mobile telecommunications network, and to use said first user input when establishing a telephone call connection through said wireless telecommunication interface; wherein the processing device is configured, in a second operating mode, to provide second user input by way of said rotator input device, said second user input including a character sequence representative of a desired text, and to forward said second user input to said text-handling software application; wherein the processing device is configured, in said second operating mode, to provide said second user input by displaying characters on said display and receiving commands from said rotator input device for browsing said characters and for selecting, in successive order, individual characters that constitute said character sequence; and wherein the processing device is configured, in said second operating mode, to display on said display a group of predicted characters that are available for browsing and selecting by way of said rotator input device; wherein said text prediction engine is configured to decide said group of predicted characters in response to a recently made user input and in accordance with a predefined inference logic, and wherein said recently made user input is a partial word, and wherein said predefined inference logic involves matching said partial word with a

database of known and/or common words to predict most likely words that said partial word is part of, and wherein said group of predicted characters, that is displayed on said display, is formed by a respective next character only, following said partial word, in respective ones of said predicted most likely words; wherein no numeric or alphanumeric character keyboard is involved in said first and second operating modes.

7,574,672	Text entry interface for a portable communication device	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Ording; Bas | Chaudhri; Imran | Lemay; Stephen O. | Van Os; Marcel | Anzures; Freddy Allen | Matas; Mike	715	G06F	20060724	5	95%	☐

Abstract: A method includes displaying a first tray and a second tray in a display of the portable communications device. The first tray is configured to display one of more characters that were selected by a user using a click wheel. The second tray includes a first plurality of icons that correspond to a set of characters and one or more recommended words. The first tray includes a first region in a graphical user interface and the second tray includes a second region in the graphical user interface. Scrolling through the first plurality of icons and the one or more recommended words occurs in accordance with one or more navigation commands received from a click wheel.

MainClaim: A method comprising: at a portable electronic device: simultaneously displaying one or more characters selected by a user, a first plurality of icons that correspond to a set of characters, and one or more recommended words, wherein the first plurality of icons and the one or more recommended words comprise a set; and sequentially scrolling through the set comprising the first plurality of icons and the one or more recommended words in accordance with one or more received navigation commands, wherein the sequential scrolling wraps around from one end of the set to another end of the set.

7,694,231	Keyboards for portable electronic devices	Apple Inc.	Kocienda; Kenneth | Herz; Scott | Williamson; Richard | Novick; Gregory | King; Virgil Scott | Blumenberg; Chris | Van Os; Marcel | Ording; Bas | Forstall; Scott | Chaudhri; Imran | Christie; Greg | Lemay; Stephen O.	715	G06F	20060724	3	93%	☐

Abstract: A plurality of icons are displayed on a touch-sensitive display. A respective icon in at least a subset of the plurality of icons corresponds to two or more symbols. A contact by a user with the touch-sensitive display that corresponds to the respective icon is detected. A respective symbol in the two or more symbols to which the contact further corresponds is determined. The displayed respective icon is modified to indicate that the contact corresponds to the respective symbol.

MainClaim: A method, comprising: at an electronic device with a touch-sensitive display: displaying a plurality of icons on the touch-sensitive display, wherein a respective icon in at least a subset of the plurality of icons corresponds to two or more symbols; detecting a finger contact by a user with the touch-sensitive display that corresponds to the respective icon; determining a respective first symbol in the two or more symbols to which the position of the finger contact further corresponds; modifying the displayed respective icon to indicate that the finger contact corresponds to the respective first symbol, wherein the modifying includes: asymmetrically distorting a shape of the respective icon towards the respective first symbol, and enlarging the respective first symbol; detecting a change of the finger contact to a different position within the respective icon, the different position corresponding to a second symbol of the two or more symbols of the respective icon, if the finger making the contact is being rolled by the user to the different position; and selecting the respective symbol corresponding to the respective current position of the finger contact.

2009/0225041	LANGUAGE INPUT INTERFACE ON A DEVICE	APPLE INC.	Kida; Yasuo | Kocienda; Ken | Furches; Elizabeth Caroline	345	G06F	20080304	1	92%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for inputting text. A virtual keyboard is presented in a first region of a touch sensitive display of a device. An input representing a phonetic string is received on the virtual keyboard. The entered phonetic string is presented in a second region of the touch sensitive display. One or more candidates are identified based on the phonetic string. At least a subset of the candidates is presented. An input selecting one of the candidates is received. The entered phonetic string is replaced with the selected candidate.

MainClaim: A method comprising:presenting a virtual keyboard in a first region of a touch-sensitive display of a device;receiving an input on the virtual keyboard representing a phonetic string;presenting the phonetic string in a second region of the touch-sensitive display;identifying one or more candidates based on the phonetic string;presenting at least a subset of the candidates in the first region or the second region;receiving an input selecting one of the candidates; andreplacing the entered phonetic string with the selected candidate.

7,403,977	Mobile phone having hinting capabilities	Nokia Corporation	Kalenius; Mika |	709	G06F	20031014	0	100%	☐

	for operation function selection		Hamynen; Kimmo						

Abstract: A mobile phone and related method for providing hinting capabilities in the mobile telephone is presented which makes a user aware of one or more next possible sub-operational functionalities available for user selection in a selected operational functionality. Control and alphanumeric keys associated with the available functionalities are identified to hint at next possible sub-functionalities available for selection wherein the keys are identified by lighting or shown as icon representations on the display of the mobile phone or tones to suggest to the user that operation of the key is related to the given operational context and sequence progression step in the selected desired operational functionality.
MainClaim: A mobile phone configured and arranged with: a display for displaying text/graphics; an arrangement of keys for inputting alphanumeric characters to the phone, selecting desired operational functionalities of the phone and navigating sub-operational functionalities within a selected operational functionality; and circuitry configured and arranged for hinting one or more next possible sub-operational functionalities available in said selected operational functionality such that said hinted one or more next possible sub-operational functionalities is communicated via a suitable alerting mechanism, said hinting performed by a non-literal character string match logic process.

7,574,672	Text entry interface for a portable communication device	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Ording; Bas | Chaudhri; Imran | Lemay; Stephen O. | Van Os; Marcel | Anzures; Freddy Allen | Matas; Mike	715	G06F	20060724	5	93%	☐

Abstract: A method includes displaying a first tray and a second tray in a display of the portable communications device. The first tray is configured to display one of more characters that were selected by a user using a click wheel. The second tray includes a first plurality of icons that correspond to a set of characters and one or more recommended words. The first tray includes a first region in a graphical user interface and the second tray includes a second region in the graphical user interface. Scrolling through the first plurality of icons and the one or more recommended words occurs in accordance with one or more navigation commands received from a click wheel.
MainClaim: A method comprising: at a portable electronic device: simultaneously displaying one or more characters selected by a user, a first plurality of icons that correspond to a set of characters, and one or more recommended words, wherein the first plurality of icons and the one or more recommended words comprise a set; and sequentially scrolling through the set comprising the first plurality of icons and the one or more recommended words in accordance with one or more received navigation commands, wherein the sequential scrolling wraps around from one end of the set to another end of the set.

7,495,585	Method for inputting characters in electronic device	Nokia Corporation	Vainio; Janne | Mikkola; Hannu J. | Korhonen; Hannu | Himanen; Sakari | Nieminen; Toni P. | Vaittinen; Tuomas | Marila; Juha	341	H03M	20060512	0	100%	☐

Abstract: According to an aspect of the invention, an enhanced audible feedback solution has been invented for electronic devices using an input device facilitating navigation though a plurality of available user interface input options and confirmation of a selected input option. The electronic device is arranged to define, as a response to detecting a selection of a character on the basis of a detection of a first input to an input device of the electronic device, an audio segment specific to the character. The electronic device is arranged to output the defined audio segment via the audio output means prior to a confirmation by a second input to the input device, the second input being associated with a function adding the character as part of a character sequence entered by the user.
MainClaim: An electronic device comprising a control unit for controlling functions of the electronic device, audio output, and a user input device for navigating through a plurality of available user interface input options and for confirming a selected input option, wherein the electronic device is configured to detect selection of a first input option on the basis of a first input to the input device and confirm the first input option as a response to detection of a second input to the input device, the first input option representing a character and the second input being associated with a function for adding the character as part of a character sequence entered by the user, the control unit is configured to define, as a response to detecting a selection of the character on the basis of the detection of the first input to the input device, an audio segment specific to the character, the control unit is configured to cause an output of the defined audio segment via the audio output prior to the confirmation, the control unit is configured to select a second input option associated with an action relating to the character sequence as a response to detection of a third input to the input device, the control unit is configured to cause an output of an audio segment specific to the action, and the control unit is configured to initiate an action associated with an inputted character sequence as a response to detection of a fourth input following the third input to the input device.

7,574,672	Text entry interface for a portable communication device	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Ording; Bas | Chaudhri; Imran | Lemay; Stephen O. | Van Os; Marcel | Anzures;	715	G06F	20060724	5	92%	☐

			Freddy Allen | Matas; Mike						

Abstract: A method includes displaying a first tray and a second tray in a display of the portable communications device. The first tray is configured to display one of more characters that were selected by a user using a click wheel. The second tray includes a first plurality of icons that correspond to a set of characters and one or more recommended words. The first tray includes a first region in a graphical user interface and the second tray includes a second region in the graphical user interface. Scrolling through the first plurality of icons and the one or more recommended words occurs in accordance with one or more navigation commands received from a click wheel.
MainClaim: A method comprising: at a portable electronic device: simultaneously displaying one or more characters selected by a user, a first plurality of icons that correspond to a set of characters, and one or more recommended words, wherein the first plurality of icons and the one or more recommended words comprise a set; and sequentially scrolling through the set comprising the first plurality of icons and the one or more recommended words in accordance with one or more received navigation commands, wherein the sequential scrolling wraps around from one end of the set to another end of the set.

7,580,029	Apparatus and method for handwriting recognition	Nokia Corporation	Liu; Ying | Kangas; Jari A. | Yanming; Zou | Yipu; Gao	345	G09G	20040402	0	100%	☐

Abstract: An apparatus for handwriting recognition has a touch-sensitive display screen providing a handwriting input area capable of detecting a handwritten user input. The apparatus also has a processing device configured to interpret the handwritten user input as a symbol from a plurality of predefined symbols. The handwriting input area includes a writing start area, and the processing device is configured to provide a visual indication of the writing start area on the display screen. The processing device is configured to interpret the user input as a symbol only if the user input starts within the writing start area.
MainClaim: An apparatus for handwriting recognition, the apparatus comprising: a touch-sensitive display screen providing a handwriting input area capable of detecting a handwritten user input; and a processing device configured to interpret the handwritten user input as a symbol from a plurality of predefined symbols, wherein the handwriting input area includes a writing start area, and wherein said writing start area is substantially smaller than said handwriting input area; wherein the processing device is configured to provide a visual indication of said writing start area on said display screen, and wherein the processing device is configured to interpret the user input as a symbol from the plurality of predefined symbols only if the detected user input is a pen down event within said writing start area and continues as a pen move event in the handwriting input area within a predetermined period of time.

7,574,672	Text entry interface for a portable communication device	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Ording; Bas | Chaudhri; Imran | Lemay; Stephen O. | Van Os; Marcel | Anzures; Freddy Allen | Matas; Mike	715	G06F	20060724	5	93%	☐

Abstract: A method includes displaying a first tray and a second tray in a display of the portable communications device. The first tray is configured to display one of more characters that were selected by a user using a click wheel. The second tray includes a first plurality of icons that correspond to a set of characters and one or more recommended words. The first tray includes a first region in a graphical user interface and the second tray includes a second region in the graphical user interface. Scrolling through the first plurality of icons and the one or more recommended words occurs in accordance with one or more navigation commands received from a click wheel.
MainClaim: A method comprising: at a portable electronic device: simultaneously displaying one or more characters selected by a user, a first plurality of icons that correspond to a set of characters, and one or more recommended words, wherein the first plurality of icons and the one or more recommended words comprise a set; and sequentially scrolling through the set comprising the first plurality of icons and the one or more recommended words in accordance with one or more received navigation commands, wherein the sequential scrolling wraps around from one end of the set to another end of the set.

7,694,231	Keyboards for portable electronic devices	Apple Inc.	Kocienda; Kenneth | Herz; Scott | Williamson; Richard | Novick; Gregory | King; Virgil Scott | Blumenberg; Chris | Van Os; Marcel | Ording; Bas | Forstall; Scott | Chaudhri; Imran | Christie; Greg | Lemay; Stephen O.	715	G06F	20060724	3	93%	☐

Abstract: A plurality of icons are displayed on a touch-sensitive display. A respective icon in at least a subset of the plurality of icons corresponds to two or more symbols. A contact by a user with the touch-sensitive display that corresponds to the respective icon is detected. A respective symbol in the two or more symbols to which the contact further corresponds is determined. The displayed respective icon is modified to indicate that the contact corresponds to

the respective symbol.
MainClaim: A method, comprising: at an electronic device with a touch-sensitive display: displaying a plurality of icons on the touch-sensitive display, wherein a respective icon in at least a subset of the plurality of icons corresponds to two or more symbols; detecting a finger contact by a user with the touch-sensitive display that corresponds to the respective icon; determining a respective first symbol in the two or more symbols to which the position of the finger contact further corresponds; modifying the displayed respective icon to indicate that the finger contact corresponds to the respective first symbol, wherein the modifying includes: asymmetrically distorting a shape of the respective icon towards the respective first symbol, and enlarging the respective first symbol; detecting a change of the finger contact to a different position within the respective icon, the different position corresponding to a second symbol of the two or more symbols of the respective icon, if the finger making the contact is being rolled by the user to the different position; and selecting the respective symbol corresponding to the respective current position of the finger contact.

7,602,378	Method, system, and graphical user interface for selecting a soft keyboard	Apple Inc.	Kocienda; Kenneth | Williamson; Richard	345	G09G	20061026	2	93%	☐

Abstract: A portable electronic device may display one of a plurality of soft keyboards in a first display area and input characters in a second display area. The user may select a key on the soft keyboard, causing a plurality of objects corresponding to the plurality of soft keyboards to be displayed. The user may then select one of the objects, and the soft keyboard corresponding to the selected object is displayed and made operational. The soft keyboards corresponding to the objects not selected are not made operational.
MainClaim: A computer-implemented method, comprising: at a portable electronic device, displaying a single soft keyboard in a first area and a window in a second area on a display of the portable electronic device, wherein the window is configured to display characters selected using a plurality of soft keyboards, wherein the plurality of soft keyboards include a keyboard that is primarily letters, a keyboard that is primarily numbers, and a keyboard that is primarily symbols other than letters and numbers; in response to selection of a keyboard selection soft key by a user, displaying simultaneously a plurality of objects that correspond to the plurality of soft keyboards; in response to selection of one of the plurality of objects by the user, displaying in the first area the soft keyboard that corresponds to the selected object and making operational, of the plurality of soft keyboards, only the soft keyboard corresponding to the selected object.

7,184,024	Method and apparatus for mapping an input location with a displayed functional representation	Nokia Corporation	Eftekhari; Jamshid	345	G09G	20010119	0	100%	☐

Abstract: A user interface is disclosed which may take a data stream, or file having hyperlinks or functional text embedded therein. The CPU of the user interface may select distinct colors for each hyperlink so that such links are distinguishable. The color selection may be made so that each link has a button that that has a matching color for at least one hyperlink. The user interface associates a button having a color with a hyperlink having the same color, such that when the button is actuated, programmed execution of the function associated with the hyperlink occurs. Thus a mapping of button, to color, to hyperlink, to function may be established.
MainClaim: A method in a device having a plurality of character-entry pressure points for selecting a function in a markup language file comprising: a) reading the markup language file; b) detecting a reference in a handheld device to a character encoding having a corresponding function, the corresponding function being displayed in a display of the handheld device; c) illuminating substantially only one character-entry pressure point corresponding to the character encoding, the substantially only one character-entry pressure point being disposed in an input area of the handheld device in proximity to the display of the handheld device, wherein a color associated with a character-entry pressure point when illuminated corresponds to a color of the corresponding navigation function; d) detecting an entry by the character-entry pressure point; and e) triggering the navigation function.

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg;	345	G06F	20080411	9	92%	☐

			Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.						

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.
MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M. J. | Lamiraux; Henri C.	345	G09G	20080411	8	92%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.
MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of

the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,469,381	List scrolling and document translation, scaling, and rotation on a touch-screen display	Apple Inc.	Ording; Bas	715	G06F	20071214	3	92%	☐

Abstract: In accordance with some embodiments, a computer-implemented method for use in conjunction with a device with a touch screen display is disclosed. In the method, a movement of an object on or near the touch screen display is detected. In response to detecting the movement, an electronic document displayed on the touch screen display is translated in a first direction. If an edge of the electronic document is reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, an area beyond the edge of the document is displayed. After the object is no longer detected on or near the touch screen display, the document is translated in a second direction until the area beyond the edge of the document is no longer displayed.
MainClaim: A computer-implemented method, comprising: at a device with a touch screen display: displaying a first portion of an electronic document; detecting a movement of an object on or near the touch screen display; in response to detecting the movement, translating the electronic document displayed on the touch screen display in a first direction to display a second portion of the electronic document, wherein the second portion is different from the first portion; in response to an edge of the electronic document being reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display: displaying an area beyond the edge of the document, and displaying a third portion of the electronic document, wherein the third portion is smaller than the first portion; and in response to detecting that the object is no longer on or near the touch screen display, translating the electronic document in a second direction until the area beyond the edge of the electronic document is no longer displayed to display a fourth portion of the electronic document, wherein the fourth portion is different from the first portion.

6,744,423	Communication terminal having a predictive character editor application	Nokia Corporation	Kraft; Christian | Sharp; Jonathan	345	G09G	20011119	0	100%	☐

Abstract: A user interface for a text entry device, comprising: a display having a first display section and a second display section, and a keypad including a set of text entry keys each having a set of characters associated therewith. The set of characters associated with each of the text entry keys being displayed in the second display section. A predictive character editor engine with associated directories is adapted to receive a string of input strokes and to output a list of matching word candidates in response thereto. A controller receives inputs from a set of text entry keys, and generates said string of input strokes for the predictive character editor. The controller presents in said first display section at least one of said matching word candidates from the predictive character editor for selection by the user.
MainClaim: A user interface for a text entry device, comprising:

a display having a first display section and a second display section;

four navigation keys each having a first set of characters associated therewith, each said navigation key for moving a cursor means in the display in a text entry mode;

said first set of characters associated with each navigation key being displayed in the second display section;

a predictive character editor engine with associated directories and adapted to receive a string of input strokes and to output a list of matching word candidates in response thereto;

a controller receiving inputs from set of text entry keys, and to generate said string of input strokes for the predictive editor, and the controller presents in said first display section at least one of said matching word candidates from the predictive editor for selection by the user,

wherein each said four navigation keys may be reconfigured by the user to be associated with a second set characters using a soft key on a pointing device of the text entry device, each second set of characters being less in number than the first set of characters associated with each said four navigation keys, the second set of characters being displayed in the second display section after the reconfiguration.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	94%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to

be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,225,410	Portable telecommunication apparatus and method for requesting downloading of pages of information from a remote source	Nokia Corporation	Kimmo; Alanen | Tommi; Ojala	715	G06F	20001208	0	100%	☐

Abstract: An apparatus and associated method is disclosed for receiving a page of information from a remote source. The page contains a link to a linked page of information, and is displayed on a display. The apparatus is equipped with a user operable input device associated with the link. Actuation of the input device causes a request to be sent for the linked page to be transmitted to the apparatus.

MainClaim: A portable telecommunication apparatus for requesting the download of pages of information from a remote source comprising: means for receiving a page of information including encoded information; identifying at least a first link and a second link to other pages; at least a first fixed location input key and a second fixed location input key aligned at an outside edge of a display, wherein the display is configured for displaying the received page and for displaying at least a first caption and a second caption indicative of said first link and said second link, respectively, aligned at an inside edge area of the display, in close proximity to the outside edge, in positions corresponding to the locations of the first fixed location input key and the second fixed location input key; and a processor for forming said first caption and said second caption from encoded information identifying the linked other pages and for consistently associating the first fixed location input key and the second fixed location input key with the encoded information identifying the first linked page and the second linked page, respectively, during a display period such that actuation of the first fixed location input key during the display period requests the first linked page for download from the remote source and actuation of the second fixed location input key during the display period requests the second linked page for download from the remote source.

7,574,672	Text entry interface for a portable communication device	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Ording; Bas | Chaudhri; Imran | Lemay; Stephen O. | Van Os; Marcel | Anzures; Freddy Allen | Matas; Mike	715	G06F	20060724	5	92%	☐

Abstract: A method includes displaying a first tray and a second tray in a display of the portable communications device. The first tray is configured to display one of more characters that were selected by a user using a click wheel. The second tray includes a first plurality of icons that correspond to a set of characters and one or more recommended words. The first tray includes a first region in a graphical user interface and the second tray includes a second region in the graphical user interface. Scrolling through the first plurality of icons and the one or more recommended words occurs in accordance with one or more navigation commands received from a click wheel.

MainClaim: A method comprising: at a portable electronic device: simultaneously displaying one or more characters selected by a user, a first plurality of icons that correspond to a set of characters, and one or more recommended words, wherein the first plurality of icons and the one or more recommended words comprise a set; and sequentially scrolling through the set comprising the first plurality of icons and the one or more recommended words in accordance with one or more received navigation commands, wherein the sequential scrolling wraps around from one end of the set to another end of the set.

6,810,272	Data entry by string of possible candidate information in a hand-portable communication terminal	Nokia Mobile Phones Limited	Kraft; Christian | Hansen; Jacob | Pukkila; Paivi	455	H04M	20020814	0	100%	☐

Abstract: A communication terminal is provided with display means, navigation means for navigating through information candidates, selection means for selecting one of the candidates, and a processor controlling the display means in accordance with the operation of the navigation means and the selection means. The display means comprises a first display part for displaying a string of entered information, and a second display part for displaying a string of a plurality of possible information candidates. One of the candidates in the second display part is highlighted by the cursor controlled by the navigation means. The processor copies the highlighted candidate from the candidate string into the entered information string upon selection by the selection means.

MainClaim: A hand-portable communication terminal having a predictive text editor application for entering text, and comprising:

display means;

navigation means for navigating through a list of information candidates;

selection means for selecting one of the candidates from said list of information candidates, wherein the terminal is configured as a handset and includes finger-operable data-entry elements in the form of keys for operating said navigation means and said selection means, the keys and the display being disposed in a front surface of the terminal;

and

a processor controlling the display means in accordance with the operation of the navigation means and the selection means, and a memory connected to the processor;

in said predictive text editor application:

a first display part of the display means is reserved for displaying a string of entered information;

a second display part of the display means is reserved for displaying a string of a plurality of possible information candidates from said list of information candidates, one of these candidates in the second display part being highlighted by a cursor controlled by the navigation means in response to an operating of one of said data-entry elements, wherein said displaying of said string of possible information candidates presents only a fraction of the total number of information candidates, the remaining information candidates being displayable in the second display part by operation of a scroll key on the front surface of the terminal;

said processor adds the highlighted candidate in the second display part into the entered information string upon selection by the selection means in response to an operating of one of said data-entry elements; and

said processor sorts the possible information candidates to be displayed as possible information candidates in the second display part in dependence on a previously selected character or characters; and

wherein said memory serves as a dictionary storing information candidates in the forms of both alphanumeric and symbolic characters, operation of the navigation means serving to extract an information candidate from the dictionary for presentation on the second display part, and wherein one of said keys provides an option function for addressing said dictionary by optional modes of address including scrolling through a sequence of the characters and the entry of alphanumeric characters to identify a specific one of the characters to be extracted from the dictionary.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	92%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio | Jarvio; Jami Jarkko Juhani	345	G09G	20040421	0	100%	☐

Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.
MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.

7,602,378	Method, system, and graphical user interface for selecting a soft keyboard	Apple Inc.	Kocienda; Kenneth | Williamson; Richard	345	G09G	20061026	2	94%	☐

Abstract: A portable electronic device may display one of a plurality of soft keyboards in a first display area and input characters in a second display area. The user may select a key on the soft keyboard, causing a plurality of objects corresponding to the plurality of soft keyboards to be displayed. The user may then select one of the objects, and the soft keyboard corresponding to the selected object is displayed and made operational. The soft keyboards corresponding to the objects not selected are not made operational.
MainClaim: A computer-implemented method, comprising: at a portable electronic device, displaying a single soft keyboard in a first area and a window in a second area on a display of the portable electronic device, wherein the window is configured to display characters selected using a plurality of soft keyboards, wherein the plurality of soft keyboards include a keyboard that is primarily letters, a keyboard that is primarily numbers, and a keyboard that is primarily symbols other than letters and numbers; in response to selection of a keyboard selection soft key by a user, displaying simultaneously a plurality of objects that correspond to the plurality of soft keyboards; in response to selection of one of the plurality of objects by the user, displaying in the first area the soft keyboard that corresponds to the selected object and making operational, of the plurality of soft keyboards, only the soft keyboard corresponding to the selected object.

2008/0168404	List Scrolling and Document Translation, Scaling, and Rotation on a Touch-Screen Display	Apple Inc.	Ording; Bas	715	G06F	20071214	2	93%	☐

Abstract: In accordance with some embodiments, a computer-implemented method for use in conjunction with a device with a touch screen display is disclosed. In the method, a movement of an object on or near the touch screen display is detected. In response to detecting the movement, an electronic document displayed on the touch screen display is translated in a first direction. If an edge of the electronic document is reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, an area beyond the edge of the document is displayed. After the object is no longer detected on or near the touch screen display, the document is translated in a second direction until the area beyond the edge of the document is no longer displayed.
MainClaim: A computer-implemented method, comprising:at a device with a touch screen display,detecting a movement of an object on or near the touch screen display;in response to detecting the movement, translating an electronic document displayed on the touch screen display in a first direction;in response to an edge of the electronic document being reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, displaying an area beyond the edge of the document; andafter the object is no longer detected on or near the touch screen display, translating the document in a second direction until the area beyond the edge of the document is no longer displayed.

7,469,381	List scrolling and document translation, scaling, and rotation on a touch-screen display	Apple Inc.	Ording; Bas	715	G06F	20071214	3	93%	☐

Abstract: In accordance with some embodiments, a computer-implemented method for use in conjunction with a device with a touch screen display is disclosed. In the method, a movement of an object on or near the touch screen display is detected. In response to detecting the movement, an electronic document displayed on the touch screen display is translated in a first direction. If an edge of the electronic document is reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, an area beyond the edge of the document is displayed. After the object is no longer detected on or near the touch screen display, the document is translated in a second direction until the area beyond the edge of the document is no longer displayed.
MainClaim: A computer-implemented method, comprising: at a device with a touch screen display: displaying a first portion of an electronic document; detecting a movement of an object on or near the touch screen display; in response to detecting the movement, translating the electronic document displayed on the touch screen display in a first direction to display a second portion of the electronic document, wherein the second portion is different from the first portion; in response to an edge of the electronic document being reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display: displaying an area beyond the edge of the document, and displaying a third portion of the electronic document, wherein the third portion is smaller than the first portion; and in response to detecting that the object is no longer on or near the touch screen display, translating the electronic document in a second direction until the area beyond the edge of the electronic document is no longer displayed to display a fourth portion of the electronic document, wherein the fourth portion is different from the first portion.

6,487,424	Data entry by string of possible candidate information in a communication terminal	Nokia Mobile Phones Limited	Kraft; Christian | Hansen; Jacob | Pukkila; Paivi	455	H04B	19990113	0	100%	☐

Abstract: A communication terminal is provided with display means, navigation means for navigating through information candidates, selection means for selecting one of the candidates, and a processor controlling the display means in accordance with the operation of the navigation means and the selection means. The display means comprises a first display part for displaying a string of entered information, and a second display part for displaying a string of a plurality of possible information candidates. One of the candidates in the second display part is highlighted by the cursor controlled by the navigation means. The processor copies the highlighted candidate from the candidate string into the entered information string upon selection by the selection means.
MainClaim: A method of entering information into a communication terminal having a text editor application based for entering non-Latin letters, and having a display, a navigator for navigating through a list of information candidates, a selector for selecting one of the candidates, and a processor controlling the display in accordance with the operation of the navigator and the selector, the method comprising:

reserving a first display part of the display for displaying a first string of entered information;

reserving a second display part of the display for displaying a second string of a plurality of possible information candidates from said list of information candidates, and highlighting one of these candidates in the second display part by a cursor controlled by the navigation means;

reserving a third display part of the display for displaying complex information candidates to be entered in dependence on information candidates already entered; and

wherein said processor is connected to a memory including a dictionary including signs in a language not based on Latin letters and corresponding pronunciation strings; the method further comprising the steps of searching pronunciation strings in the dictionary memory to find a string fitting with letters already entered; displaying a corresponding sign in the third display part; and copying the highlighted candidate from the candidate string into the entered information string upon selection by the selection means.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	92%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,694,237	Method and apparatus for using menu functions of an electronic device	Nokia Corporation	Pusa; Juha | Leinonen; Katja | Kekki; Jussi-Pekka	715	G06F	20030501	0	100%	☐

Abstract: A method and an apparatus for using menu functions of an electronic device are presented. The electronic device provides the menu functions in a menu layer structure that comprises a top menu layer and at least one lower menu layer. One of the lower menu layers is a bottom menu layer. The top menu layer overlaps at least partially the lower menu layers. A user of the electronic device selects a menu layer to be provided as a top menu layer from the lower menu layers by giving a first command and the user selects a function to be performed from the top menu layer by giving a second command.
MainClaim: A method comprising: providing on a display of an electronic device menu functions in a layered menu structure comprising several at least partially overlapped menu layers, the layered menu structure comprising at least a first menu layer and at least one further menu layer, said first menu layer comprising first menu functions, the first menu layer being displayed as a top layer of the layered menu structure on the display, said at least one further menu layer comprising second menu functions, in which layered menu structure the at least one further menu layer and other menu layers preceding the at least one further menu layer are displayed as part of the layered menu structure so as to be at least partially covered by said first menu layer, where all menu layers except for the first menu layer are displayed as part of the layered menu structure so as to be at least partially covered by the first menu layer, the method further comprising: forming a logical link between said first menu layer and one of said at least one further menu layer in such a way that said one of said at least one further menu layer is either (i) a menu layer that follows said first menu layer in the layered menu structure or (ii) a menu layer that precedes said first menu layer in the layered menu structure, a user selecting said one of said at least one further menu layer to be moved to the top layer of the layered menu structure so as to be displayed on the display instead of said first menu layer by giving a first command, said first menu layer then being displayed as part of the layered menu structure so as to be at least partially covered by said selected one of said at least one further menu layer, and the user selecting a menu function presented on that menu layer which is on the top layer of the layered menu structure displayed on the display by giving a second command.

2006/0026535	Mode-based graphical user interfaces for touch sensitive input devices	Apple Computer Inc.	Hotelling; Steve | Huppi; Brian Q. | Strickon; Joshua A. | Kerr; Duncan Robert | Ording; Bas | Chaudhri; Imran | Christie; Greg | Ive; Jonathan P.	715	G06F	20050118	4	93%	☐

Abstract: A user interface method is disclosed. The method includes detecting a touch and then determining a user interface mode when a touch is detected. The method further includes activating one or more GUI elements based on the user interface mode and in response to the detected touch.
MainClaim: A user interface method, comprising: detecting a touch; determining a user interface mode when a touch is detected; displaying one or more GUI elements based on the user interface mode; and enabling the functionality of the GUI element.

			Jobs; Steven P. | Forstall; Scott |					

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.	345	G06F	20080411	9	92%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson;	345	G09G	20080411	8	92%	☐

			Richard | Boule; Andre M. J. | Lamiraux; Henri C.						

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.
MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,556,204	Electronic apparatus and method for symbol input	Nokia corproation	Jacobsen; Niels	235	G06K	20060419	0	100%	☐

Abstract: An electronic apparatus having a user interface for symbol input is disclosed. The apparatus has a display and an input device having an elongated touch-sensitive sensor area and capable of detecting user actuations of a plurality of sensor positions along a main axis of the elongated touch-sensitive sensor area. The apparatus also has a processing device coupled to the display and the input device. In response to a user actuation of a current sensor position among said plurality of sensor positions of the input device, the processing device determines, from the current sensor position, a current symbol position in a symbol sequence, and then controls the display to indicate a current symbol held by the current symbol position in the symbol sequence.
MainClaim: An electronic apparatus having a user interface for symbol input, the apparatus comprising: a display; an input device having an elongated touch-sensitive sensor area and capable of detecting user actuations of a plurality of sensor positions along a main axis of said elongated touch-sensitive sensor area; and a processing device coupled to said display and said input device, wherein the processing device, in response to a user actuation of a current sensor position among said plurality of sensor positions of said input device, is configured to: determine, from said current sensor position, a current symbol position in a symbol sequence, and control said display to indicate a current symbol held by said current symbol position in said symbol sequence; and wherein the processing device is configured to control said display for presentment of said symbol sequence in a predetermined and fixed order, and to control said display to indicate said current symbol held by said current symbol position by marking it as available for selection; and wherein the processing device is configured to detect a first user actuation of a first sensor position of said input device, determine from the first sensor position a first symbol position holding a first symbol, and control the display to mark the first symbol as available for selection, and wherein the processing device is further configured to detect a second user actuation of said input device, determine from said first symbol position and said second user actuation a second symbol position holding a second symbol, and control the display to mark the second symbol as available for selection instead of the first symbol.

7,694,231	Keyboards for portable electronic devices	Apple Inc.	Kocienda; Kenneth | Herz; Scott | Williamson; Richard | Novick; Gregory | King; Virgil Scott | Blumenberg; Chris | Van Os; Marcel | Ording; Bas | Forstall; Scott | Chaudhri; Imran | Christie; Greg | Lemay; Stephen O.	715	G06F	20060724	3	93%	☐

Abstract: A plurality of icons are displayed on a touch-sensitive display. A respective icon in at least a subset of the plurality of icons corresponds to two or more symbols. A contact by a user with the touch-sensitive display that corresponds to the respective icon is detected. A respective symbol in the two or more symbols to which the contact further corresponds is determined. The displayed respective icon is modified to indicate that the contact corresponds to the respective symbol.
MainClaim: A method, comprising: at an electronic device with a touch-sensitive display: displaying a plurality of icons on the touch-sensitive display, wherein a respective icon in at least a subset of the plurality of icons corresponds to two or more symbols; detecting a finger contact by a user with the touch-sensitive display that corresponds to the respective icon; determining a respective first symbol in the two or more symbols to which the position of the finger contact further

corresponds; modifying the displayed respective icon to indicate that the finger contact corresponds to the respective first symbol, wherein the modifying includes: asymmetrically distorting a shape of the respective icon towards the respective first symbol, and enlarging the respective first symbol; detecting a change of the finger contact to a different position within the respective icon, the different position corresponding to a second symbol of the two or more symbols of the respective icon, if the finger making the contact is being rolled by the user to the different position; and selecting the respective symbol corresponding to the respective current position of the finger contact.

2008/0316183	SWIPE GESTURES FOR TOUCH SCREEN KEYBOARDS	Apple Inc.	Westerman; Wayne Carl | Lamiraux; Henri | Dreisbach; Matthew Evan	345	G06F	20070622	1	92%	☐

Abstract: Systems, methods, and devices for interpreting manual swipe gestures as input in connection with touch-sensitive user interfaces that include virtual keyboards are disclosed herein. These allow for a user entering text using the virtual keyboard to perform certain functions using swipes across the key area rather than tapping particular keys. For example, leftward, rightward, upward, and downward swipes can be assigned to inserting a space, backspacing, shifting (as for typing capital letters), and inserting a carriage return and/or new line. Various other mappings are also described. The described techniques can be used in conjunction with a variety of devices, including handheld devices that include touch-screen interfaces, such as desktop computers, tablet computers, notebook computers, handheld computers, personal digital assistants, media players, mobile telephones, and combinations thereof.

MainClaim: A method of interpreting swipe gesture input across a virtual keyboard area of a touch-sensitive device wherein taps of a touch object in the virtual keyboard area generate text input, the method comprising:detecting a swipe gesture across the virtual keyboard;determining a direction of the swipe gesture; andperforming a predetermined function determined by the direction of the swipe gesture without regard to an initial touchdown point of the swipe gesture.

6,865,404	Handset	Nokia Mobile Phones Limited	Tikkala; Paivi | With; Mikko | Kraft; Christian	455	H04Q	20000222	0	100%	☐

Abstract: A handset including a user interface having an input, a display for presenting an item, and a selection device coupled to the input for selecting an item presented on the display. The item may be presented in contracted format and/or expanded format.

MainClaim: A handset comprising:

an input device;

display means for displaying a plurality of items;

selection means for selecting one item from a plurality of items displayed on the display means; and

control means responsive to the selection means selecting one item from a plurality of first items displayed on the display means, to cause the display means to display a plurality of second items related to the selected first item, wherein:

the control means is further responsive to the selection means selecting one item from the plurality of second items displayed on the display means, to cause the display means to display the plurality of first items together with an indication of the selected second item.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson;	345	G09G	20080411	8	94%	☐

			Richard | Boule; Andre M. J. | Lamiraux; Henri C.						

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.	345	G06F	20080411	9	94%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,092,495	Communication terminal	Nokia Corporation	Kraft; Christian | Huusko; Eeva | Jarnstom; Johanna | Wikberg; Harri | Kiliander; Harri | Turner; Matthew P.	379	H04B	20011213	0	100%	☐

Abstract: A communication terminal having a user interface, and comprising a controller unit controlling said user interface, a first and a second operation key whose operation is controlled by the controller unit, and a display. The communication terminal being capable of assuming a plurality of states in which the groups of predetermined operations that may be performed by pressing said operation key are defined by the controller unit in said plurality of states. The first operation key is dedicated by the controller unit to perform one operation from said group of operations as a default function in dependence of the state assumed by the communication terminal, and the display has a first area solely dedicated for displaying the present operation performed when pressing said first operation key. The second operation key being dedicated by the controller unit to give access to said group of operations being available in the state assumed by the communication terminal. A scroll key allowing the user to scroll between operations included in said group of actions available for said second operation key. The user selects a highlighted operation by pressing a selection key.

MainClaim: A communication terminal including a user interface comprising: a controller controlling said user interface; three multi-operational keys whose operation is controlled by the controller unit; a display including areas dedicated for displaying present operations performed when pressing the three multi-operational keys; and wherein the communication terminal assumes a plurality of states in which groups of predetermined operations that may be performed by pressing the operation keys are defined by the controller in the plurality of states; a first one of the three multi-operation keys is dedicated by the controller unit to perform one operation from the group of operations as a default function in dependence on a state assumed by the communication terminal; a second one of the three multi-operation keys is dedicated by the controller unit to give access to the group of operations available in a state assumed by the communication terminal; and a third one of the three multi-operation keys is dedicated by the controller to give access to negative and backward going actions.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M. J. | Lamiraux; Henri C.	345	G09G	20080411	8	92%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of

initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.	345	G06F	20080411	9	92%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,728,818	Method, device computer program and graphical user interface for user input of an electronic device	Nokia Corporation	Yu; Kun | Wang; Kong Qiao | Kangas; Jari	345	G09G	20050930	0	100%	☐

Abstract: A method of controlling an electronic device including a touch sensitive display the method including displaying a plurality of graphical items on the touch sensitive display where each graphical item has an identity; detecting a coupling, formed by a user, of at least two graphical items, the coupling including, a trace on the touch sensitive display between the at least two graphical items; and, performing an action dependent upon the identity of the coupled graphical items.

MainClaim: A method comprising: displaying a plurality of graphical items on a touch sensitive display where each graphical item has an identity; detecting a coupling, formed by a user, of at least two graphical items, the coupling comprising, a trace on the touch sensitive display between the at least two graphical items, wherein when the user begins to make the trace, an indication is displayed to indicate the item on which the trace began; and, performing an action dependent upon the identity of the coupled graphical items.

			Jobs; Steven P. | Forstall; Scott |					

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.	345	G06F	20080411	9	92%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

2008/0168404	List Scrolling and Document Translation, Scaling, and Rotation on a Touch-Screen Display	Apple Inc.	Ording; Bas	715	G06F	20071214	2	92%	☐

Abstract: In accordance with some embodiments, a computer-implemented method for use in conjunction with a device with a touch screen display is disclosed. In the method, a movement of an object on or near the touch screen display is detected. In response to detecting the movement, an electronic document displayed on the touch screen display is translated in a first direction. If an edge of the electronic document is reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, an area beyond the edge of the document is displayed. After the object is no longer detected on or near the touch screen display, the document is translated in a second direction until the area beyond the edge of the document is no longer displayed.

MainClaim: A computer-implemented method, comprising:at a device with a touch screen display,detecting a movement of an object on or near the touch screen display;in response to detecting the movement, translating an electronic document displayed on the touch screen display in a first direction;in response to an edge of the electronic document being reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, displaying an area beyond the edge of the document; andafter the object is no longer detected on or near the touch screen display, translating the document in a second direction until the area beyond the edge of the document is no longer displayed.

7,469,381	List scrolling and document translation, scaling, and rotation on a touch-screen display	Apple Inc.	Ording; Bas	715	G06F	20071214	3	92%	☐

Abstract: In accordance with some embodiments, a computer-implemented method for use in conjunction with a device

with a touch screen display is disclosed. In the method, a movement of an object on or near the touch screen display is detected. In response to detecting the movement, an electronic document displayed on the touch screen display is translated in a first direction. If an edge of the electronic document is reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, an area beyond the edge of the document is displayed. After the object is no longer detected on or near the touch screen display, the document is translated in a second direction until the area beyond the edge of the document is no longer displayed.
MainClaim: A computer-implemented method, comprising: at a device with a touch screen display: displaying a first portion of an electronic document; detecting a movement of an object on or near the touch screen display; in response to detecting the movement, translating the electronic document displayed on the touch screen display in a first direction to display a second portion of the electronic document, wherein the second portion is different from the first portion; in response to an edge of the electronic document being reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display: displaying an area beyond the edge of the document, and displaying a third portion of the electronic document, wherein the third portion is smaller than the first portion; and in response to detecting that the object is no longer on or near the touch screen display, translating the electronic document in a second direction until the area beyond the edge of the electronic document is no longer displayed to display a fourth portion of the electronic document, wherein the fourth portion is different from the first portion.

6,542,170	Communication terminal having a predictive editor application	Nokia Mobile Phones Limited	Williams; Stephen | Svensson; Henrik Brun	345	G06F	20000222	0	100%	☐

Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; and a processor controlling the display in accordance with the operation of the keypad. The processor runs a predictive editor program for generating an output containing a word matching a received string of ambiguous key strokes. Furthermore an editor application is controlled by the processor for editing a text based on the predictive editor program's interpretation of key strokes received from the editor application. The editor application stores a list of matching words received from the predictive editor program, at least a part of the text string is displayed in the display. The keypad includes at least one softkey whose functionality is displayed in the display and controlled by the processor. When the editor program runs out of possible word matches to the received key stroke string, the processor changes the functionality of the at least one softkey to a short cut to another editor application for inputting word based upon unambiguous key strokes.
MainClaim: A communication terminal having:

a display;

a keypad having a plurality of keys associated with several letters each; processor means controlling the display means in accordance with the operation of the keypad;

a predictive editor program for generating an output containing words matching a received string of ambiguous key strokes;

an editor application controlled by the processor means for editing a text based on the predictive editor program's interpretation of key strokes received from the editor application, and comprising means for storing a list of matching words received from said predictive editor program, at least a part of said text string is displayed in the display;

said keypad includes at least one softkey whose functionality is displayed in the display and controlled by the processor means; and

when said editor program runs out of possible word matches to the received key stroke string, said processor means automatically without user intervention, changes the functionality of said at least one softkey to a short cut to another editor application for inputting word based upon unambiguous key strokes.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	94%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,450,111	Key functionality for communication terminal	Nokia Corporation	Hietala; Nigel | Autio; Markku | Saarinen; Kalle Sakari	345	G09G	20041027	0	100%	☐

Abstract: A multimedia terminal has a touch sensitive display that displays information and receives user inputs. A

control unit controls the operation of the terminal in accordance with user inputs received by the touch sensitive display and selectively executes at least one audio application and at least one video application. There are a plurality of user keys. One of the keys changes an audio/video output of the terminal depending on the application being executed by the control unit at the time that the key is selected.
MainClaim: A multimedia terminal comprising: a touch sensitive display; a control unit adapted to control the operation of the terminal and to selectively execute at least one audio application and at least one video application; and a plurality of user keys, a first one of said keys, when selected by the user when a digital camera application is being executed by the control unit, at least a portion of said touch sensitive display functioning as a viewfinder in said digital camera application, performing zoom function on said camera and on the portion of said touch sensitive display functioning as the viewfinder.

2010/0064255	CONTEXTUAL MENUS IN AN ELECTRONIC DEVICE	Apple Inc.	Rottler; Benjamin Andrew | Wood; Policarpo	715	G06F	20080905	3	93%	☐

Abstract: A system and method for displaying menus of selectable options to a user are provided. The menus may include options that are contextually related to a current mode of the device to provide relevant options to a user. The electronic device modes may include, for example, a media mode, a radio mode, a workout mode, a calendar or event mode, a clock mode, a stopwatch mode, or any other suitable mode. To further enhance a user's experience, the displayed menus may not cover the entirety of the screen such that a portion of the content associated with a current mode or application may be visible, thus providing context to the displayed options.
MainClaim: A method for displaying a menu with selectable contextual options using a portable electronic device, comprising:displaying non-selectable content associated with a current mode of an electronic device, wherein the current mode comprises at least one of media, recording, audio book, radio, workout, calendar, event, clock, and stopwatch modes;detecting the current mode;identifying at least one option associated only with the detected current mode;generating a menu comprising the identified at least one option; andoverlaying the generated menu on the displayed content associated with the identified current mode such that at least a portion of the content remains visible.

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.	345	G06F	20080411	9	93%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.
MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for

determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M. J. | Lamiraux; Henri C.	345	G09G	20080411	8	93%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

6,223,059	Communication terminal having a predictive editor application	Nokia Mobile Phones Limited	Haestrup; Jan	455	H04B	20000222	0	100%	☐

Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; processor means controlling the display means in accordance with the operation of the keypad. The communication terminal has a predictive editor program for generating an output containing words matching a received string of ambiguous key strokes. Furthermore the communication terminal has on editor application controlled by the processor means for editing a text based on the predictive editor programs interpretation of key strokes. The editor application comprises means for storing string of entered words, means for storing a sequence of key stokes, said sequence is updated upon the occurrence of a new key stroke, and being used as input to the predictive editor program, means for storing a list of matching words received from said predictive editor program. The processor means combines the text string and one word from the list of matching words for displaying in the display of at least a part of said text string and one word from the list of matching words, said one word from the list of matching words is marked in comparison to the remaining part of the text string and added to the text string upon acknowledgement by the user. The terminal comprises means for acknowledging a word suggested by said predictive editor program, and said acknowledging means includes a key on the keypad indicating that a word suggested by said predictive editor program is a part of a compound word, said editor application fixes the suggested word as an acknowledged part of the compound word, resets said sequence of key strokes serving as input for said predictive editor program in order to determine another part of the compound word independently of the acknowlegded part of the compound word.

MainClaim: A communication terminal having:

a display;

a keypad having a plurality of keys associated with several letters each;

processor means controlling the display means in accordance with the operation of the keypad;

a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key strokes;

an editor application controlled by the processor means for editing a text based on the predictive editor programs interpretation of key strokes, and comprising:

means for storing string of entered words,

means for storing a sequence of key stokes, said sequence is updated upon the occurrence of a new key stroke, and being used as input to the predictive editor program,

means for storing a list of matching words received from said predictive editor program,

said processor means combines the text string and one word from the list of matching words for displaying in the display of at least a part of said text string and one word from the list of matching words, said one word from the list of matching words is marked in comparison to the remaining part of the text string and added to the text string upon acknowledgement by the user; and

means for acknowledging a word suggested by said predictive editor program, and said acknowledging means includes a key on the keypad indicating that a word suggested by said predictive editor program is a part of a compound word, said editor application fixes the suggested word as an acknowledged part of the compound word, resets said sequence of key strokes serving as input for said predictive editor program in order to determine another part of the compound word independently of the acknowlegded part of the compound word.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	93%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.

MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,155,683	Communication terminal having a predictive editor application	Nokia Corporation	Williams; Stephen	715	G06F	20000222	0	100%	☐

Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; a processor for controlling the display in accordance with the operation of the keypad; a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key strokes, the predictive editor program has a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs. An editor application is controlled by the processor which communicates with said predictive editor programs for generating matching words based on an ambiguous string of key strokes. A second memory of the communication terminal for storing user inputted data. The processor automatically searches the second memory for words and copies these words into the dictionary for receiving user defined inputs associated with said predictive editor program.

MainClaim: A communication terminal having: a display; a keypad for use in the operation of said communication terminal having a plurality of keys associated with several letters each; processor means controlling the display in accordance with the operation of the keypad; a predictive editor program for generating an output containing word matching a received string of ambiguous key strokes, said predictive editor program having a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs stored in a first memory which serves said predictive editor program; an editor application controlled by the processor means communicates with said predictive editor program for generating matching words based on an ambiguous string of key strokes; at least one applications predictive editor program independent of said predictive editor program: second memory means of the communication terminal independent of said first memory means for storing user inputted data in an electronic database, said second memory means serving said at least one applications program; and wherein said processor means automatically searches said second memory means for words and copies

these words into said at least one dictionary for receiving user defined inputs and associated with said predictive editor program.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	93%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,725,838	Communication terminal having a predictive editor application	Nokia Corporation	Williams; Stephen	715	G06F	20061130	0	100%	☐

Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; processor means controlling the display means in accordance with the operation of the keypad; a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key strokes, said predictive editor program has a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs. An editor application is controlled by the processor means communicates with said predictive editor programs for generating matching words based on an ambiguous string of key strokes. Second memory means of the communication terminal for storing user inputted data. The processor means automatically searches said second memory means for words and copies these words into said at least one dictionary for receiving user defined inputs and associated with said predictive editor program.
MainClaim: A communication terminal comprising: a keypad having a plurality of keys associated with several letters each; a processor for receiving a string of ambiguous key strokes from the keypad; a predictive editor program associated with the processor for generating words matching the received string of ambiguous key strokes, said predictive editor program having a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary for receiving user defined inputs; a first editor application, controlled by the processor, operatively associated with said predictive editor program for generating matching words based on said at least one language dependent dictionary and/or said at least one dictionary for receiving user defined inputs; a second editor application controlled by said processor for entering key strokes in an unambiguous form; wherein said second editor is used to edit said matching words generated by said first editor application; and wherein said processor stores the edited words in said at least one dictionary for receiving user defined inputs; wherein said processor associates a storing time for the edited words stored in said dictionary for receiving user defined inputs and said processor resets the associated storing time with each use of the edited words; and wherein said processor maintains the dictionary containing the edited words dependent on the storing time.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	94%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,336,263	Method and apparatus for integrating a wide keyboard in a small device	Nokia Corporation	Valikangas; Jyrki	345	G06T	20030117	0	100%	☐

Abstract: The invention relates to a method and an apparatus for using a wide keyboard including a wide range of keys in small mobile devices. A method relates to operating a mobile device having a touch sensitive display divided in input and output portions. A first location of a tactile input is detected on an input portion of the touch sensitive display displaying a plurality of keys. Next the input portion display view is zoomed by displaying and linearly magnifying the detected tactile input area and it's surrounding. A second location of a tactile input is detected and a key on the location of a second detected tactile input is highlighted. The highlighted key is activated and identified as an input.
MainClaim: A method for operating a mobile device having a touch sensitive display, the method comprising: dividing the touch sensitive display into an adjustable input portion and an adjustable output portion, areas of the adjustable input and output portions being adjustable with respect to each other, displaying a plurality of keys within the adjustable input portion of the touch sensitive display, detecting a location of a first tactile input on the adjustable input portion of

the touch sensitive display displaying a plurality of keys, zooming a view of the adjustable input portion by displaying and linearly magnifying an area within which the first tactile input was detected, detecting a location of a second tactile input after magnifying said area, highlighting a key on the location of the second detected tactile input, and activating the highlighted key and identifying the activated key as an input.

2008/0088602	MULTI-FUNCTIONAL HAND-HELD DEVICE	Apple Inc.	HOTELLING; Steven P.	345	G09G	20071228	4	93%	☐

Abstract: Disclosed herein is a multi-functional hand-held device capable of configuring user inputs based on how the device is to be used. Preferably, the multi-functional hand-held device has at most only a few physical buttons, keys, or switches so that its display size can be substantially increased. The multi-functional hand-held device also incorporates a variety of input mechanisms, including touch sensitive screens, touch sensitive housings, display actuators, audio input, etc. The device also incorporates a user-configurable GUI for each of the multiple functions of the devices.
MainClaim: A hand-held multi-functional electronic device, comprising: a combined touch screen and user interface display; and a processing unit operatively connected to said touch screen and display, said processing unit capable of identifying and tracking a plurality of concurrent moving touch inputs from a user via said touch screen and discriminating a user requested action from the plurality of touch inputs; wherein the touch screen is adapted for recognition of a plurality of concurrent touchdown locations anywhere on the surface.

2008/0158170	MULTI-EVENT INPUT SYSTEM	APPLE COMPUTER, INC.	HERZ; SCOTT M. | Yepez; Roberto G. | Westerman; Wayne Carl	345	G06F	20070103	3	92%	☐

Abstract: Multi-event input systems, methods, and devices for use in connection with touch-sensitive electronic devices are disclosed. In accordance with certain embodiments of the present disclosure, a third state called "hover" can be achieved on a touch-base user interface device in addition to the states of pointer down and pointer up. In an embodiment involving a capacitive touch-sensing surface, one way to achieve the third state is for the user to contact the touchpad or touch screen with a non-flesh part of a finger, such as a fingernail, rather than the fleshy part of a finger. In other embodiments, the non-flesh part may comprise an electrically insulative layer covering a portion of a finger. The third state enables an adjunct system's user interface to achieve active navigation around the screen in a pointer-up (or left-up) input tool condition. One result is that mouseover pop-ups can be used on touch screen devices. Another result is that tooltips can be used on touch screen devices. Another result is that text can be selected using touch screen devices.
MainClaim: A multi-event input method comprising:discriminating between a first contact and a second contact, wherein the first contact is between a touch-surface display and a flesh surface and the second contact is between the touch-surface display and a non-flesh surface;using the first contact to drive a first event; andusing the second contact to drive a second event.

7,103,841	Method and arrangement for providing an expanded desktop	Nokia Corporation	Ronkainen; Sami | Paihonen; Sami	715	G06F	20020507	0	100%	☐

Abstract: The invention relates to a method and arrangement for expanding a desktop. Especially the invention relates to a method and arrangement for expanding a desktop virtually. The objects of the invention are fulfilled by relating an audible sound to the application, window or other user interface element as it is shifted out of the display. The sound related to the user interface element may also be characteristic for the element it is related to. In addition, the element can be located by only listening to the sound related to the element.
MainClaim: A method for providing an expanded virtual desktop that includes at least one user interface element, comprising: providing at least one area on the expanded virtual desktop that is not visually discernable by the user and that expands outside of all areas visible to a user in a screen; locating the at least one user interface element outside all visible display areas visible to the user in the screen and within the expanded virtual desktop; relating a determined sound to said at least one user interface element, and locating said at least one user interface element in the expanded virtual expanded desktop on the basis of said determined sound related to said at least one user interface element located outside all visible display areas visible to the user in the screen and within the expanded virtual desktop.

2006/0026535	Mode-based graphical user interfaces for touch sensitive input devices	Apple Computer Inc.	Hotelling; Steve | Huppi; Brian Q. | Strickon; Joshua A. | Kerr; Duncan Robert | Ording; Bas | Chaudhri; Imran | Christie; Greg | Ive; Jonathan P.	715	G06F	20050118	4	92%	☐

Abstract: A user interface method is disclosed. The method includes detecting a touch and then determining a user interface mode when a touch is detected. The method further includes activating one or more GUI elements based on the user interface mode and in response to the detected touch.
MainClaim: A user interface method, comprising: detecting a touch; determining a user interface mode when a touch is detected; displaying one or more GUI elements based on the user interface mode; and enabling the functionality of the GUI element.

7,479,947	Form factor for portable device	Nokia Corporation	Pihlaja; Pekka Juhana	345	G09G	20050926	0	100%	☐

Abstract: A form factor for a portable device is disclosed. A first face of the portable device may house a display screen and three linear input devices (e.g., touch-sensitive strips), one on each of three sides of the display screen, for providing user input. On a second, opposite face of the portable device, is a planar input device (e.g., a touchpad) for providing user input. There may also be a microphone and speaker on the second face of the portable device, with the speaker placed behind the planar input device. Sound output by the speaker passes through holes in the planar input

device. In one embodiment, the planar input device is used for scrolling content displayed on the display screen, one of the linear input devices is used for zooming in and out, and the other two linear input devices are used for identifying a location on the display screen. In another embodiment, the planar input device is used to identify a location on the display screen, and two of the linear input devices are used for scrolling.
MainClaim: An apparatus, comprising: a display screen on a front face of the apparatus, a first linear input device affixed along a first side of the display screen; a second linear input device affixed along a second side of the display screen; a third linear input device affixed along a third side of the display screen; a planar input device located on the back face of the apparatus; and control logic for manipulating content displayed on the display screen responsive to user input via the first, second, third, and planar input devices, wherein the control logic causes the apparatus to horizontally scroll an image displayed on the display screen responsive to input received through the first linear input device; wherein the control logic causes the apparatus to vertically scroll the image displayed on the display screen responsive to input received through the second linear input device; wherein the control logic causes the apparatus to enlarge and reduce the image displayed on the display screen responsive to input received through the third linear input device; and wherein the control logic causes the apparatus to identify a point on the display screen responsive to input received through the planar input device.

2008/0088602	MULTI-FUNCTIONAL HAND-HELD DEVICE	Apple Inc.	HOTELLING; Steven P.	345	G09G	20071228	4	95%	☐

Abstract: Disclosed herein is a multi-functional hand-held device capable of configuring user inputs based on how the device is to be used. Preferably, the multi-functional hand-held device has at most only a few physical buttons, keys, or switches so that its display size can be substantially increased. The multi-functional hand-held device also incorporates a variety of input mechanisms, including touch sensitive screens, touch sensitive housings, display actuators, audio input, etc. The device also incorporates a user-configurable GUI for each of the multiple functions of the devices.
MainClaim: A hand-held multi-functional electronic device, comprising: a combined touch screen and user interface display; and a processing unit operatively connected to said touch screen and display, said processing unit capable of identifying and tracking a plurality of concurrent moving touch inputs from a user via said touch screen and discriminating a user requested action from the plurality of touch inputs; wherein the touch screen is adapted for recognition of a plurality of concurrent touchdown locations anywhere on the surface.

2008/0158170	MULTI-EVENT INPUT SYSTEM	APPLE COMPUTER, INC.	HERZ; SCOTT M. | Yepez; Roberto G. | Westerman; Wayne Carl	345	G06F	20070103	3	94%	☐

Abstract: Multi-event input systems, methods, and devices for use in connection with touch-sensitive electronic devices are disclosed. In accordance with certain embodiments of the present disclosure, a third state called "hover" can be achieved on a touch-base user interface device in addition to the states of pointer down and pointer up. In an embodiment involving a capacitive touch-sensing surface, one way to achieve the third state is for the user to contact the touchpad or touch screen with a non-flesh part of a finger, such as a fingernail, rather than the fleshy part of a finger. In other embodiments, the non-flesh part may comprise an electrically insulative layer covering a portion of a finger. The third state enables an adjunct system's user interface to achieve active navigation around the screen in a pointer-up (or left-up) input tool condition. One result is that mouseover pop-ups can be used on touch screen devices. Another result is that tooltips can be used on touch screen devices. Another result is that text can be selected using touch screen devices.
MainClaim: A multi-event input method comprising:discriminating between a first contact and a second contact, wherein the first contact is between a touch-surface display and a flesh surface and the second contact is between the touch-surface display and a non-flesh surface;using the first contact to drive a first event; andusing the second contact to drive a second event.

2007/0103454	Back-Side Interface for Hand-Held Devices	Apple Computer, Inc.	Elias; John G.	345	G09G	20070105	2	94%	☐

Abstract: An electronic device uses separate surfaces for input and output. One of the surfaces (e.g., the bottom) includes a force-sensitive touch-surface through which a user provides input (e.g., cursor manipulation and control element selection). On a second surface (e.g., the top), a display element is used to present information appropriate to the device's function (e.g., video information), one or more control elements and a cursor. The cursor is controlled through manipulation of the back-side touch-surface. The cursor identifies where on the back-side touch-surface the user's finger has made contact. When the cursor is positioned over the desired control element, the user selects or activates the function associated with the control element by applying pressure to the force-sensitive touch-surface with their finger. Accordingly, the electronic device may be operated with a single hand, wherein cursor movement and control element selection may be accomplished without lifting one's finger.
MainClaim: A method for operating a hand-held electronic device, comprising: displaying first information on a display element on a first surface of a hand-held electronic device; displaying control elements and a cursor on the display element when the electronic device is in a specified state; adjusting a display position of the cursor in response to a contact on a force-sensitive touch-surface on a second surface of the electronic device, the second surface being a different surface than the first surface; and activating a function associated with a first displayed control element when the cursor is positioned coincident with the first displayed control element and an activation force is applied to the force-sensitive touch-surface at a position corresponding to the cursor.

7,149,550	Communication terminal having a text editor application with a word completion feature	Nokia Corporation	Kraft; Christian | Pedersen; Claus Aagaard | Benner; Jens | Hansen; Lars Bohn | Marila; Juha | Korhonen; Panu	455	H04B	20011127	0	100%	☐

Abstract: The input of words into a text string in a communication terminal is handled by recording a key stroke sequence inputted for characterising one of said words, and comparing said key strokes sequence with candidates in a

word completion directory in order to find word completion candidates matching said key stroke sequence. One of said matching word completion candidates is displayed in the display for selection by the user. When the user selects a word which exceeds a first predetermined number of characters the selected word is added to the directory including a plurality of word completion candidates, if the selected word is not present there already.
MainClaim: A method of handling the input of words into a text string in a communication terminal, comprising steps of: recording a key stroke sequence inputted for characterizing one of said words; comparing said key stroke sequence with candidates in a word completion directory in order to find word completion candidates matching said key stroke sequence; displaying one of said matching word completion candidates in a display for selection by the user; and adding a word selected by the user to said directory including a plurality of word completion candidates, if the selected word exceeds a first predetermined number of characters, and if this word is not present there already, wherein the user, when the candidate comprises a text string consisting of a plurality of individual words, selects the first candidate word in the text string by pressing a select-key for a period shorter than a predetermined period of time, and selects the entire text string by pressing the select-key for a period longer than the predetermined period of time.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	92%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi | Mori; Eigo	345	G09G	20021223	0	100%	☐

Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.
MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

2006/0026535	Mode-based graphical user interfaces for touch sensitive input devices	Apple Computer Inc.	Hotelling; Steve | Huppi; Brian Q. | Strickon; Joshua A. | Kerr; Duncan Robert | Ording; Bas | Chaudhri; Imran | Christie; Greg | Ive; Jonathan P.	715	G06F	20050118	4	95%	☐

Abstract: A user interface method is disclosed. The method includes detecting a touch and then determining a user interface mode when a touch is detected. The method further includes activating one or more GUI elements based on the user interface mode and in response to the detected touch.
MainClaim: A user interface method, comprising: detecting a touch; determining a user interface mode when a touch is detected; displaying one or more GUI elements based on the user interface mode; and enabling the functionality of the GUI element.

2006/0026536	Gestures for touch sensitive input devices	Apple Computer, Inc.	Hotelling; Steve | Strickon; Joshua A. | Huppi; Brian Q. | Chaudhri; Imran | Christie; Greg | Ording; Bas | Kerr; Duncan Robert | Ive; Jonathan P.	715	G06F	20050131	1	95%	☐

Abstract: Methods and systems for processing touch inputs are disclosed. The invention in one respect includes reading data from a multipoint sensing device such as a multipoint touch screen where the data pertains to touch input with

respect to the multipoint sensing device, and identifying at least one multipoint gesture based on the data from the multipoint sensing device.
MainClaim: A computer implemented method for processing touch inputs, said method comprising: reading data from a touch sensitive device, the data pertaining to touch input with respect to the touch sensitive device, and the touch sensitive device having a multipoint capability; and identifying at least one multipoint gesture based on the data from the touch sensitive device.

2008/0211785	GESTURES FOR TOUCH SENSITIVE INPUT DEVICES	APPLE INC.	Hotelling; Steve | Strickon; Joshua A. | Huppi; Brian O. | Chaudhri; Imran | Christie; Greg | Ording; Bas | Kerr; Duncan Robert | Ive; Jonathan P.	345	G06F	20080509	1	95%	☐

Abstract: Methods and systems for processing touch inputs are disclosed. The invention in one respect includes reading data from a multipoint sensing device such as a multipoint touch screen where the data pertains to touch input with respect to the multipoint sensing device, and identifying at least one multipoint gesture based on the data from the multipoint sensing device.
MainClaim: A computer implemented method of initiating a page turn via a touch screen, the method comprising:displaying a page from a multitude of pages in a GUI presented on the touch screen;detecting the presence of an object in a predetermined region on the touch screen over the page; andgenerating a page turn signal when the object is translated on the touch screen in the predetermined region.

6,832,353	Viewing web pages on small screen devices using a keypad for navigation	Nokia Mobile Phones, Ltd.	Itavaara; Jaakko | Malinen; Semi | Nieminen; Pasi | Suthar; Bhavin | Zhang; Honglang	715	G09G	20010608	0	100%	☐

Abstract: A method and system for browsing and navigating web pages on a small screen device using a keypad are disclosed. A web page is divided into logical sections. In one embodiment, each section is mapped to at least one key on a keypad, such that when a user presses a key, the corresponding section of the web page is displayed on the device's display panel. In another embodiment, each section is mapped to a symbol which can be remembered by the user. The user then selects the symbol corresponding to the section of the web page that he or she desires to view. As each section of the web page is being viewed, an icon may be included on the screen to indicate that portion of the web page that is being viewed.
MainClaim: A method for displaying a web page that has been divided into a plurality of separately displayable sections on a small-screen device having a plurality of user-selectable elements and a display, the method comprising the steps of:

(i) receiving over a wireless communication channel, web page information and association information, wherein the association information associates each section of the web page to one or more selectable elements on the small-screen device;

(ii) storing in a memory of the small-screen device the web page and the information that associates each section to the one or more user-selectable elements;

(iii) detecting that a user of the small-screen device has selected one of the plurality of user-selectable elements;

(iv) in response to step (iii), displaying on the display the section associated with the one selected element; and

(v) displaying an icon indicating which section of the web page is displayed.

2009/0044134	DYNAMIC INTERFACES FOR PRODUCTIVITY APPLICATIONS	Apple Inc	Cave; Richard | Ward; Simon	715	G06F	20080806	2	92%	☐

Abstract: Systems, methods, and computer readable media for providing improved user interfaces for productivity applications are provided. In some embodiments, when a user inputs data into a document, the interface can determine what the format is for that data, such as a text format or an image format. The interface can then remove any presented icons, which can be in the form of a toolbar, not useful for the selected data format and provide icons that are useful for the selected data format. The icons provided can be a predetermined set of icons selected by the designer of the user interface or can be a custom set of icons preselected by a user of the interface.
MainClaim: A method of providing a dynamic interface for a productivity application comprising:displaying one or more first options associated with a first user action type in the dynamic interface;detecting a change in the user action type from the first user action type to a second user action type;removing the one or more first options from within the dynamic interface when the change is detected; anddisplaying one or more second options associated with the second user action type in the dynamic interface.

			Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott |						

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics	Apple Inc.	Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.	345	G06F	20080411	9	92%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M. J. | Lamiraux; Henri	345	G09G	20080411	8	92%	☐

			C.						

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.
MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,562,241	Method for receiving inputs from user of electronic device	Nokia Corporation	Nurmi; Mikko	713	G06F	20050920	0	100%	☐

Abstract: A method of receiving inputs by an electronic device comprising a user interface component is disclosed. The user interface component is set in an inactive operating mode, such as a keypad locking mode or a screen saver mode, for substantially non-active usage of the user interface component. An input is received in the inactive mode. The input received in the inactive operating mode may be stored and presented on a user interface component.
MainClaim: An electronic device comprising a user interface component and a processing unit configured to set the user interface component in an inactive operating mode to be applied during non-active or limited usage of the user interface component, wherein the electronic device is configured to detect a user input on a touch screen during the inactive mode, the device is configured to store the user input during the inactive operating mode, the device is configured to activate an application for processing the stored user input after exiting the inactive operating mode, the device is configured to submit the user input for the application, and the device is configured to prompt the user for a further action after exiting the inactive operating mode.

2009/0227232	Access Management	APPLE INC.	Matas; Mike | Van Os; Marcel MWA | Forstall; Scott	455	H04M	20080304	1	93%	☐

Abstract: Methods, computing devices and computer-readable media for access management are disclosed. A method of passcode authentication includes: maintaining a count for failed authentication attempts, displaying a visual representation of a current count for failed authentication attempts on an authentication interface. An additional method of passcode authentication is also disclosed which includes: maintaining a count for failed authentication attempts; determining a current authentication request invalid; determining a delay time based on the count for failed authentication attempts; and delaying submission of a second authentication attempt until after the delay time has expired, wherein the delaying submission manifests in a delayed visual feedback of user input, in a delayed processing of user input, or in an inability to enter user input for during the delay time.
MainClaim: A method, comprising:determining a current authentication request is invalid;determining a delay time; anddelaying submission of a next authentication request until after the delay time has expired.

2010/0011304	ADDING A CONTACT TO A HOME SCREEN	APPLE INC.	van Os; Marcel MWA	715	G06F	20080709	2	92%	☐

Abstract: An icon can be created for a contact (e.g., an individual(s) or an entity) and presented on a user interface of a mobile device, such as a "home screen." The icon can be used to retrieve and display contact information. The icon can also be used to invoke one or more applications that are personalized to the contact. The icon can be modified to display information related to the contact. In one aspect, an icon associated with an entity can be temporarily displayed on the mobile device based on the proximity of the mobile device to the entity. The icon can be used to retrieve and display information related to the entity. Additionally, the icon can be removed from the display on the mobile device when the mobile device is no longer within a certain proximity of the entity.
MainClaim: A method comprising:displaying on a mobile device, content associated with a contact;receiving input to create an icon associated with the content;creating an icon based on the content; anddisplaying the icon on a user interface of the mobile device.

2010/0041382	Unified Settings for Multiple Account Types	APPLE INC.	Van Os; Marcel MWA | Marcos; Paul | Doll; Evan	455	H04M	20080812	2	92%	☐

Abstract: Account types that support one or more data classes (e.g., email, contacts, calendar, instant messaging) can be added and configured on a mobile device using a unified settings user interface. The user interface allows the user to easily activate and deactivate one or more data classes for an account type. The user interface can support one or more predefined account types and can allow the user to add and configure new account types. Visual indicators are provided in the user interface to remind the user of the data classes that are active on the mobile device for a particular account. Users can configure settings that effect a particular data class in all accounts on the mobile device. Users can also configure settings that are specific to a particular account.
MainClaim: A method comprising:displaying on a user interface of the mobile device one or more account types;receiving first input through the user interface selecting an account type;responsive to the first input, displaying

on the user interface two or more data classes associated with the account type;receiving second input through the user interface for configuring at least one data class; andadding an account of the account type on the mobile device where the account includes the at least one data class.

7,009,599	Form factor for portable device	Nokia Corporation	Pihlaja; Pekka Juhana	345	G09G	20011120	0	100%	☐

Abstract: A form factor for a portable device is disclosed. A first face of the portable device may house a display screen and three linear input devices (e.g., touch-sensitive strips), one on each of three sides of the display screen, for providing user input. On a second, opposite face of the portable device, is a planar input device (e.g., a touchpad) for providing user input. There may also be a microphone and speaker on the second face of the portable device, with the speaker placed behind the planar input device. Sound output by the speaker passes through holes in the planar input device. In one embodiment, the planar input device is used for scrolling content displayed on the display screen, one of the linear input devices is used for zooming in and out, and the other two linear input devices are used for identifying a location on the display screen. In another embodiment, the planar input device is used to identify a location on the display screen, and two of the linear input devices are used for scrolling.
MainClaim: A portable electronic device, comprising:

a display screen on a front face of the portable device,

a first linear input device affixed along a first side of the display screen;

a second linear input device affixed along a second side of the display screen;

a third linear input device affixed along a third side of the display screen;

a planar input device on a back face of the portable device; and

control logic for manipulating content displayed on the display screen responsive to user input via the first, second, third, and planar input devices,

wherein the control logic causes the portable device to identify a horizontal position on the display screen responsive to input received through the first linear input device;

wherein the control logic causes the portable device to identify a vertical position on the display screen responsive to input received through the second linear input device;

wherein the control logic causes the portable device to enlarge and reduce an image displayed on the display screen responsive to input received through the third linear input device; and

wherein the control logic causes the portable device to horizontally and vertically scroll the image on the display screen responsive to input received through the planar input device.

2008/0088602	MULTI-FUNCTIONAL HAND-HELD DEVICE	Apple Inc.	HOTELLING; Steven P.	345	G09G	20071228	4	95%	☐

Abstract: Disclosed herein is a multi-functional hand-held device capable of configuring user inputs based on how the device is to be used. Preferably, the multi-functional hand-held device has at most only a few physical buttons, keys, or switches so that its display size can be substantially increased. The multi-functional hand-held device also incorporates a variety of input mechanisms, including touch sensitive screens, touch sensitive housings, display actuators, audio input, etc. The device also incorporates a user-configurable GUI for each of the multiple functions of the devices.
MainClaim: A hand-held multi-functional electronic device, comprising: a combined touch screen and user interface display; and a processing unit operatively connected to said touch screen and display, said processing unit capable of identifying and tracking a plurality of concurrent moving touch inputs from a user via said touch screen and discriminating a user requested action from the plurality of touch inputs; wherein the touch screen is adapted for recognition of a plurality of concurrent touchdown locations anywhere on the surface.

2007/0103454	Back-Side Interface for Hand-Held Devices	Apple Computer, Inc.	Elias; John G.	345	G09G	20070105	2	93%	☐

Abstract: An electronic device uses separate surfaces for input and output. One of the surfaces (e.g., the bottom) includes a force-sensitive touch-surface through which a user provides input (e.g., cursor manipulation and control element selection). On a second surface (e.g., the top), a display element is used to present information appropriate to the device's function (e.g., video information), one or more control elements and a cursor. The cursor is controlled through manipulation of the back-side touch-surface. The cursor identifies where on the back-side touch-surface the user's finger has made contact. When the cursor is positioned over the desired control element, the user selects or activates the function associated with the control element by applying pressure to the force-sensitive touch-surface with their finger. Accordingly, the electronic device may be operated with a single hand, wherein cursor movement and control element selection may be accomplished without lifting one's finger.
MainClaim: A method for operating a hand-held electronic device, comprising: displaying first information on a display element on a first surface of a hand-held electronic device; displaying control elements and a cursor on the display element when the electronic device is in a specified state; adjusting a display position of the cursor in response to a contact on a force-sensitive touch-surface on a second surface of the electronic device, the second surface being a different surface than the first surface; and activating a function associated with a first displayed control element when

the cursor is positioned coincident with the first displayed control element and an activation force is applied to the force-sensitive touch-surface at a position corresponding to the cursor.

2008/0158170	MULTI-EVENT INPUT SYSTEM	APPLE COMPUTER, INC.	HERZ; SCOTT M. | Yepez; Roberto G. | Westerman; Wayne Carl	345	G06F	20070103	3	93%	☐

Abstract: Multi-event input systems, methods, and devices for use in connection with touch-sensitive electronic devices are disclosed. In accordance with certain embodiments of the present disclosure, a third state called "hover" can be achieved on a touch-base user interface device in addition to the states of pointer down and pointer up. In an embodiment involving a capacitive touch-sensing surface, one way to achieve the third state is for the user to contact the touchpad or touch screen with a non-flesh part of a finger, such as a fingernail, rather than the fleshy part of a finger. In other embodiments, the non-flesh part may comprise an electrically insulative layer covering a portion of a finger. The third state enables an adjunct system's user interface to achieve active navigation around the screen in a pointer-up (or left-up) input tool condition. One result is that mouseover pop-ups can be used on touch screen devices. Another result is that tooltips can be used on touch screen devices. Another result is that text can be selected using touch screen devices.
MainClaim: A multi-event input method comprising:discriminating between a first contact and a second contact, wherein the first contact is between a touch-surface display and a flesh surface and the second contact is between the touch-surface display and a non-flesh surface;using the first contact to drive a first event; andusing the second contact to drive a second event.

6,966,037	Method and apparatus for scrollable cross-point navigation in a calendar user interface	Nokia Corporation	Fredriksson; Linus | Nyberg; Urban	715	G06F	20011119	0	100%	☐

Abstract: Method and apparatus for displaying an electronic calendar in a scrollable cross-point navigation image having two bars, each containing panels corresponding to a separate folder or entry of the calendar's hierarchy of folders and entries. At the intersection of the bars is displayed the current lowest level and the next upper level, if any. In one embodiment, the next higher level is shown in an adjoining panel on a first bar, the next higher level in a next adjoining panel on that bar, until there are no further higher levels to display, at which point the remaining upper-most level folders are displayed. The second bar displays sub-folders or calendar entries within the folder in the focus panel. Moving in the folder hierarchy causes the panels in the first bar to shift to display all intervening levels through the top level.
MainClaim: A method for displaying calendar information in a display associated with an electronic device, comprising:

organizing a plurality of calendar entries into a hierarchy comprising a plurality of calendar groups, at least one of which calendar groups having at least one sublevel of calendar subgroups; and

displaying panels on a display associated with an electronic device, the panels being arranged into two bars of panels with a common focus panel at the intersection of the two bars of panels, each of the panels being linked to and identifying one of (a) one of the plurality of calendar entries, (b) one of the calendar groups, and (c) one of the calendar subgroups,

wherein the focus panel identifies (a) a currently selectable lowest level in the hierarchy and optionally (b) the next higher level, if any,

wherein levels, if any, in the hierarchy higher than that displayed in the focus panel are identified in one of (a) succeeding adjoining panels of a first of the two bars, other panels of the first bar identifying highest level groups in the hierarchy, and (b) other panels of the first bar identifying groups in the hierarchy in the next higher level identified in the focus panel; and

wherein panels of the second of the two bars each identify one of (a) calendar entries, if any, (b) calendar groups, if any, and (c) calendar subgroups, if any, of the same level in the hierarchy as the currently selectable lowest level in the hierarchy identified in the focus panel.

2008/0174570	Touch Screen Device, Method, and Graphical User Interface for Determining	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | Van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Corrman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld;	345	G06F	20080411	9	92%	☐

	Commands by Applying Heuristics		Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M.J. | Lamiraux; Henri C.						

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.
MainClaim: A computing device, comprising:a touch screen display;one or more processors;memory; andone or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including:instructions for detecting one or more finger contacts with the touch screen display;instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; andinstructions for processing the command;wherein the one or more heuristics comprise:a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command;a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command; anda next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

2008/0288869	Boolean Search User Interface	APPLE INC.	Ubillos; Randy	715	G06F	20080801	2	92%	☐

Abstract: A computer implemented method includes displaying a plurality of keywords, each keyword being associated with one or more media items and a Boolean operation tool comprising an inclusion selector and an exclusion selector. The method also includes receiving a selection of either the inclusion selector or the exclusion selector for one or more of the associated keywords, filtering the media items based on the one or more selected selectors, and displaying the filtered media items. Media items can include, for example, video clips, segments of video clips, and digital still images.
MainClaim: A computer implemented method comprising:displaying a plurality of keywords, each keyword being associated with one or more media items and a Boolean operation tool comprising an inclusion selector and an exclusion selector;receiving a selection of either the inclusion selector or the exclusion selector for one or more of the associated keywords;filtering the media items based on the one or more selected selectors; anddisplaying the filtered media items.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. | Forstall; Scott | Christie; Greg | Lemay; Stephen O. | Herz; Scott | van Os; Marcel | Ording; Bas | Novick; Gregory | Westerman; Wayne C. | Chaudhri; Imran | Coffman; Patrick Lee | Kocienda; Kenneth | Ganatra; Nitin K. | Anzures; Freddy Allen | Wyld; Jeremy A. | Bush; Jeffrey | Matas; Michael | Marcos; Paul D. | Pisula; Charles J. | King; Virgil Scott | Blumenberg; Chris | Tolmasky; Francisco Ryan | Williamson; Richard | Boule; Andre M. J. | Lamiraux; Henri C.	345	G09G	20080411	8	92%	☐

Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.
MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

7,401,300	Adaptive user interface input device	Nokia Corporation	Nurmi; Mikko	715	G06F	20040109	0	100%	☐

Abstract: The present invention relates to an adaptable user interface. The adaptable user interface provides a more error free input function as well as greater ease of use when being used during certain events such as while moving. A user interface in accordance with the principles of the present invention comprises a user input, at least one sensor, and a display unit functionally in communication with the at least one sensor and adapted to change its user interface input mode. The user interface is capable of adapting its user interface input in response to a stimulus sensed by the sensor.
MainClaim: An adaptable user interface input comprising: at least one sensor capable of sensing motion; a user interface input device in communication with the at least one sensor , the user interface input device being configured to display input metaphors, provide input by at least one of selecting an input metaphor and performing handwriting recognition, and adapt to motion sensed by the at least one sensor; and a timer for tracking a predetermined minimum amount of time between user interface input device adaptation such that the user interface input device is adapted only after the minimum amount of time has elapsed since the last time the user interface input device was adapted.

2006/0053387	Operation of a computer with touch screen interface	Apple Computer, Inc.	Ording; Bas	715	G06F	20050916	1	94%	☐

Abstract: A touch screen computer executes an application. A method of operating the touch screen computer in response to a user is provided. A virtual input device is provided on the touch screen. The virtual input device comprises a plurality of virtual keys. It is detected that a user has touched the touch screen to nominally activate at least one virtual key, and a behavior of the user with respect to touch is determined. The determined behavior is processed and a predetermined characteristic is associated with the nominally-activated at least one virtual key. A reaction to the nominal activation is determined based at least in part on a result of processing the determined behavior.
MainClaim: A method of operating a touch screen computer in response to a user, the touch screen computer executing an application, comprising: providing a virtual input device, comprising a plurality of virtual graphical user interface (GUI) items, on the touch screen; detecting that a user has touched the touch screen to nominally activate at least one virtual GUI item and determining a behavior of the user with respect to said touch; processing said determined behavior and a predetermined characteristic associated with said nominally-activated at least one virtual GUI item; and determining a reaction to said nominal activation based at least in part on a result of said processing step.

2006/0033724	Virtual input device placement on a touch screen user interface	Apple Computer, Inc.	Chaudhri; Imran | Christie; Greg | Ording; Bas	345	G09G	20050916	1	94%	☐

Abstract: A display is generated on a touch screen of a computer. The display includes an application display, associated with an application executing on the computer, and a virtual input device display for a user to provide input to the application executing on the computer via the touch screen. In response to a virtual input device initiation event, initial characteristics of the virtual input device display are determined. Based on characteristics of the application display and the characteristics of the virtual input device display, initial characteristics of a composite display image are determined including the application display and the virtual input device display. The composite image is caused to be displayed on the touch screen.
MainClaim: A computer-implemented method of generating a display on a touch screen of a computer, the display including an application display, associated with an application executing on the computer, and a virtual input device display for a user to provide input to the application executing on the computer via the touch screen, the method comprising: in response to a virtual input device initiation event, determining initial characteristics of the virtual input device display; based on characteristics of the application display and the characteristics of the virtual input device display, determining initial characteristics of a composite display image including the application display and the virtual input device display; and causing the composite display to be displayed on the touch screen.

7,614,008	Operation of a computer with touch screen interface	Apple Inc.	Ording; Bas	715	G06F	20050916	1	94%	☐

Abstract: A touch screen computer executes an application. A method of operating the touch screen computer in response to a user is provided. A virtual input device is provided on the touch screen. The virtual input device comprises

a plurality of virtual keys. It is detected that a user has touched the touch screen to nominally activate at least one virtual key, and a behavior of the user with respect to touch is determined. The determined behavior is processed and a predetermined characteristic is associated with the nominally-activated at least one virtual key. A reaction to the nominal activation is determined based at least in part on a result of processing the determined behavior.
MainClaim: A method comprising: at a computing device with a multipoint sensing touch screen display, a processor, and a memory: detecting a touch by a user on the multipoint sensing touch screen display; determining a behavior of the user's touch by processing signals created by the multipoint sensing touch screen display in response to the user's touch, wherein the behavior includes spatial domain behavior and time domain behavior; accessing a data structure in the memory, the data structure comprising data representing: a plurality of virtual keys; and for each virtual key in the plurality of virtual keys: a plurality of predetermined behavioral characteristics, wherein each predetermined behavioral characteristic in the plurality of predetermined behavioral characteristics includes predetermined values of behavior in the spatial domain and/or time domain; and a respective reaction for each respective predetermined behavioral characteristic in the plurality of predetermined behavioral characteristics; matching the determined behavior of the user's touch to a predetermined behavioral characteristic for a virtual key; determining a reaction for the virtual key in the data structure that corresponds to the matched predetermined behavioral characteristic for the virtual key; and performing an action that corresponds to the determined reaction, wherein a first virtual key in the plurality of virtual keys requires a first pressure to be activated, a second virtual key in the plurality of virtual keys requires a second pressure to be activated, and the first pressure is less than the second pressure, and wherein the first virtual key is adjacent to the second virtual key.

7,039,879	Method and apparatus for scrollable cross-point navigation in a user interface	Nokia Corporation	Bergsten; Jonas | Sokjer; Per	715	G06F	20010628	0	100%	☐

Abstract: Method and apparatus for controlling an electronic device by navigating through a hierarchy of groups of commands while continuously providing the current location and path in the hierarchical structure. A displayed scrollable cross-point navigation image has two bars, each containing panels corresponding to a separate folder, etc. At the intersection of the bars is displayed the current lowest level and the next upper level, if any. The next higher level is shown in an adjoining panel on a first bar, the next higher level in a next adjoining panel on that bar, until there are no further higher levels to display, at which point the remaining upper-most level folders are displayed. The second bar displays sub-folders or settings within the folder in the focus panel. Moving in the folder hierarchy causes the panels in the first bar to shift to display all intervening levels through the top level.
MainClaim: A method for displaying information in a display associated with an electronic device, comprising: organizing a plurality of information entries into a hierarchy comprising a plurality of groups, at least one of which groups having at least one sublevel of subgroups; and displaying panels on a display associated with an electronic device, the panels being arranged into two bars of panels with a common focus panel, each of the panels being linked to and identifying one of (a) one of the plurality of information entries, (b) one of the groups, and (c) one of the subgroups, wherein the focus panel identifies (a) a currently selectable lowest level in the hierarchy and (b) the next higher level, if any, wherein levels, if any, in the hierarchy higher than that displayed in the focus panel are identified in succeeding adjoining panels of a first of the two bars, other panels of the first bar identifying highest level groups in the hierarchy, and wherein panels of the second of the two bars each identify one of (a) information entries, if any, (b) groups, if any, and (c) subgroups, if any, of the same level in the hierarchy as the currently selectable lowest level in the hierarchy identified in the focus panel.

2008/0288869	Boolean Search User Interface	APPLE INC.	Ubillos; Randy	715	G06F	20080801	2	92%	☐

Abstract: A computer implemented method includes displaying a plurality of keywords, each keyword being associated with one or more media items and a Boolean operation tool comprising an inclusion selector and an exclusion selector. The method also includes receiving a selection of either the inclusion selector or the exclusion selector for one or more of the associated keywords, filtering the media items based on the one or more selected selectors, and displaying the filtered media items. Media items can include, for example, video clips, segments of video clips, and digital still images.
MainClaim: A computer implemented method comprising:displaying a plurality of keywords, each keyword being associated with one or more media items and a Boolean operation tool comprising an inclusion selector and an exclusion selector;receiving a selection of either the inclusion selector or the exclusion selector for one or more of the associated keywords;filtering the media items based on the one or more selected selectors; anddisplaying the filtered media items.

7,546,544	Method and apparatus for creating multimedia presentations	Apple Inc.	Weber; Ralf | Mitchell; Jeff | Wasko; Tim	715	G06F	20030106	1	92%	☐

Abstract: Some embodiments of the invention provide a computerized method for creating and editing a multimedia item. The method provides a menu theme for a multimedia item. The menu theme includes a display section for displaying a multimedia item, an adjustable text section for displaying several selectable text options, and a special effect built into the menu theme for applying to the multimedia item. The method presents the multimedia item on display after applying the special effect to the multimedia item.
MainClaim: A computerized method for creating and editing a multimedia item comprising: providing a plurality of menu themes to a user, said plurality of menu themes comprising at least two menu themes, each of said two menu themes comprising a display section for displaying at least one image and a special effect for applying to said at least one image, wherein the special effect of one menu theme is different from the special effect of the other menu theme, and wherein the display section comprises an area for dragging and dropping said at least one image; receiving a selection of a menu theme for the multimedia item, said selection being one of said two menu themes; allowing a user to select the at least one image to display in the display section of the selected menu theme by dropping said at least one image in said area for dragging and dropping said at least one image; and displaying the at least one image in the selected menu theme's display section with said special effect applied to the at least one image.

			Bull; William |					

2010/0058240	Dynamic Control of List Navigation Based on List Item Properties	Apple Inc.	Wood; Policarpo | Hicks; Kourtny Minh | Rottler; Benjamin Andrew | Hope; Eric James | Cannistraro; Alan	715	G06F	20080826	1	92%	☐

Abstract: Navigating or scrolling through a list of items is enhanced by assigning a given item a non-null value for a friction property, and slowing the scrolling when the given item nears or enters the viewport, or pausing the scrolling when the given item enters the viewport. Scrolling at speed can be configured to be resumed when the user takes a particular action, or can be configured to resume after a designated elapsed time without user action. At least to the extent that scrolling through the list is accompanied by sequential items being at a cursor position within the viewport, the scrolling can slow down or pause when the given item is within a predetermined number of list items from the cursor position.
MainClaim: A method of controlling the display of a list of items in response to a scrolling request, the method comprising:converting the scrolling request to a scrolling control signal using a default mapping so that items on the list move relative to a reference position with a speed profile and direction determined by the default mapping; andin response to determining that a given item on the list has friction and that the given item and the reference position satisfy a proximity constraint, overriding the default mapping and converting the scrolling request to a scrolling control signal using an override mapping so that items on the list move relative to the reference position with a lower speed than otherwise specified by the default mapping.

7,197,184	ZhuYin symbol and tone mark input method, and electronic device	Nokia Corporation	Repka; Mikko	382	G06K	20040930	0	100%	☐

Abstract: A method for entering ZhuYin symbols and tone marks into electronic text is provided. The method comprises receiving an input symbol and providing a candidate list comprising the input symbol and the Chinese characters associated with the input symbol. After the selection of the input symbol from the candidate list, the selected input symbol is entered to the electronic text, and the tone marks of the ZhuYin symbol set are provided. After the selection of a tone mark, the selected tone mark is entered to the electronic text.
MainClaim: A method for entering ZhuYin symbols and tone marks into electronic text, the method comprising: receiving a ZhuYin symbol input from the user interface of the electronic device; providing in a display unit of the electronic device a candidate list comprising the input ZhuYin symbol along with a Chinese character candidate list associated with the ZhuYin symbol input from the user interface; receiving an input from the user interface, the input being related to the selection of the ZhuYin symbol included in the candidate list; entering into electronic text the ZhuYin symbol based on the ZhuYin symbol selection input from the user interface; providing in the display unit of the electronic device the tone marks of the ZhuYin symbol set; receiving the tone mark selection input from the user interface; entering into electronic text, a tone mark associated with the selected ZhuYin symbol, based on the tone mark selection input from the user interface.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	95%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

2009/0077464	INPUT METHODS FOR DEVICE HAVING MULTI-LANGUAGE ENVIRONMENT	APPLE INC.	Goldsmith; Deborah Eileen | Takano; Takumi | Masui; Toshiyuki | Collins, JR.; Leland Douglas | Kida; Yasuo | Kocienda; Ken	715	G06F	20080909	1	94%	☐

Abstract: Text input is corrected on a touch-sensitive display by presenting a list of candidate words in the interface which can be selected by touch input. The candidate list can include candidate words having two or more character types (e.g., Roman, kana, kanji). In one aspect, the candidate list can be scrolled using a finger gesture. When a user's finger traverses a candidate word and the touch is released, the candidate word is inserted into a document being edited. In another aspect, characters can be erased by touching a key (e.g., a backspace or delete key) and making a sliding, swiping, or other finger gesture. A number of characters proportional to a distance (e.g., a linear distance) of the finger gesture across the display are erased. If there are characters in a text input area, those characters are erased first, followed by characters in the document being edited.
MainClaim: A method comprising:obtaining text input for a document being edited on a touch-sensitive display;determining if the text input includes an incorrect character;if the text input includes an incorrect character or if the text input is ambiguous, determining a list of possibly correct candidate words;displaying the list of candidate words

on the touch-sensitive display;obtaining touch input selecting one of the candidate words; andinserting the candidate word into the document being edited.

6,732,078	Audio control method and audio controlled device	Nokia Mobile Phones Ltd	Luomi; Marko | Kari; Hannu | Decker; Peter | Bergman; Janne	704	G10L	19990519	0	100%	☐

Abstract: In a method for controlling a data processor (2) with a group of audio commands, information is presented on a display device (16) of the data processor, and at least one control field, to which a predetermined function is assigned is formed on the display device (16). In the method, one audio command from said group of audio commands is assigned to said control field, and an audio command assigned to said control field is presented on the display device, wherein when the user gives an audio command assigned to the control field, the recognition of the audio command as well as a function corresponding to the recognized audio command is conducted.
MainClaim: A method for controlling a data processor with a group of audio commands, the method comprising:

presenting information on a display device of the data processor;

forming at least one control field to which a predetermined function is assigned on the display device;

assigning one audio command from said group of audio commands to said control field; and

presenting the audio command assigned to said control field on the display device, wherein when a user utters the audio command assigned to the control field, the audio command is recognized and the function corresponding to the audio command is conducted.

2009/0216531	PROVIDING TEXT INPUT USING SPEECH DATA AND NON-SPEECH DATA	APPLE INC.	Yanagihara; Kazuhisa	704	G10L	20080222	1	92%	☐

Abstract: Systems, methods, and computer readable media providing a speech input interface. The interface can receive speech input and non-speech input from a user through a user interface. The speech input can be converted to text data and the text data can be combined with the non-speech input for presentation to a user.
MainClaim: A system comprising:a user interface operable to receive speech input and non-speech input from a user;a communications interface operable to communicate the speech input and non-speech input to a speech to text composition module, the speech to text composition module being operable to convert the speech input to text data and to supplement the text data with the non-speech input to produce combined text data; anda presentation module operable to receive the combined text data and to present the combined text data to the user.

6,822,585	Input of symbols	Nokia Mobile Phones, Ltd.	Ni; Jian | Gou; Yong | Gao; Ninghui	341	G09G	20000915	0	100%	☐

Abstract: A mobile phone has a display and a keypad which comprises a plurality of keys. Each key has associated with it a plurality of different symbols. The keypad is used to enter symbols in the form of Pinyin strings (25) into the display which are then used to determine a candidate list (26) of Chinese characters which are presented in the display. Symbols are entered into the display by pressing respective keys once or more than one times in rapid succession. Selection of a symbol is only permitted if it corresponds to a valid Pinyin string (25), either in isolation or in combination with one or more symbols entered in a previous selection. Characters chosen from the candidate list are entered into a message (24) in the display.
MainClaim: A method of inputting characters into a terminal the terminal having a display and at least a first symbol entry key and a second symbol entry key the first symbol entry key representing a first set of different symbols and the second symbol entry key representing a second set of different symbols in which use of the first symbol entry key to make a previous selection of a particular symbol from the first set of symbols is used to determine which of those symbols represented by the second symbol entry key is/are selectable in a subsequent selection wherein a character is input-able before a complete set of symbols corresponding to that character is selected.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	92%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,502,632	Text messaging device	Nokia Corporation	Ciminelli; Gabriele	455	H04B	20040625	0	100%	☐

Abstract: A hand-held wireless communication device for creating and sending text messages including ideograms, said communication device including: an input interface for a user to make a phonetic input; and a processor for controlling a

display device so as to display thereon one or more ideogrammatic representations of said phonetic input according to a first language, which are each selectable by the user for incorporation into a text message according to further information relating thereto in a second language.
MainClaim: An apparatus, comprising: an input interface for a user to make a phonetic input; and a processor configured to control a display device so as to display thereon one or more ideogrammatic representations of said phonetic input according to a first language, and configured to provide further information in a second language different to said first language and according to which said ideogrammatic representations are each selectable by the user for incorporation into a text message, wherein said further information comprises information other than a representation of the phonetic input in a script of the second language, and wherein said further information comprises a second language equivalent and the pronunciation of said second language equivalent.

2009/0058823	Virtual Keyboards in Multi-Language Environment	APPLE INC.	Kocienda; Ken	345	G06F	20080211	12	92%	☐

Abstract: The disclosed implementations include displays of accented or related characters for characters selected by a user through a virtual keyboard operating in a multi-language environment. In one aspect, when a user clicks and holds down a key, a popup displays accented characters for the character associated with the key. In another aspect, the order of accented characters can be based a frequency of occurrence of the accented character in the current language being typed by the user. In another aspect, when a character is at edge of a display, the popup is visually displayed in a different location and the ordering of the accents in the display are set with the more frequently occurring accents being more quickly accessible. In another aspect, auto correction is used to correct accented equivalents for compounds. In another aspect, a different visual keyboard layout is provided for different languages.
MainClaim: A method comprising:detecting a location of a touch actuation on a touch sensitive display;determining a key selection associated with the touch actuation;determining if one or more alternate key selections related to the key selection are to be displayed; andif one or more alternate key selections related to the key selection are determined to be displayed, then displaying the one or more alternate key selections proximate to the location of the touch actuation.

7,111,788	System and method for navigating applications using a graphical user interface	Nokia Corporation	Reponen; Erika	235	G06K	20020422	0	100%	☐

Abstract: A computing device having a graphical interface system for navigating computer programs is provided. The system includes a navigation display showing an organizational model of a computer program that is formed by concentric rings representing levels of options within the computer program. At least one of the rings is an active ring, which is emphasized to show selectable options. The options represent either categories of other options or features of the computer program. The options may be represented by icons or words. A method for navigating a computer program using the organizational model includes using a graphical user interface to select options on an active ring. Selecting a category option activates an inner ring that displays options related to the previously selected option on the next higher ring. The user continues navigating through inner rings until a feature option is selected, which invokes a feature of the computer program.
MainClaim: A display for a computing device showing an organizational model of features for a computer program, the display comprising: a plurality of generally concentric rings, each ring representing an organizational level of options, each option comprising a handle for a feature of the computer program or a link to another level of options, the plurality of rings comprising: an active ring; and a first inactive ring disposed generally outside of the active ring, the first inactive ring including a first selected option indicator indicating a previously selected option from the first inactive ring without including unselected options for the first inactive ring; a plurality of active ring options shown on the active ring.

2004/0210849	Combined menu-list control element in a graphical user interface	APPLE COMPUTER, INC.	Becker, Thomas W.	715	G09G	20040510	1	92%	☐

Abstract: A control element for use in a graphical user interface, which combines the display features of the list box element and the pop-up menu element into a single GUI control element. The combined menu list control element is capable of displaying data in multiple states thereby allowing to it to optimally use the available display space for presenting data to the user. By allowing menu list control element to display data as either a list or a menu, it combines the advantages of lists and menus while avoiding their disadvantages.
MainClaim: In a graphical user interface, a method of presenting data using a control element, the method comprising the step of: configuring the control element to display said data in a first display state or a second display state, wherein said control element, in said first display state, presents said data as a list, and said control element in said second display state, presents a menu which can be accessed to present said data.

7,388,578	Touch display PDA phone with slide keypad	Nokia Corporation	Tao; Di	345	G06F	20040701	0	100%	☐

Abstract: A user interface for an electronic device is constructed having a touch sensitive screen which may be operated in multiple configurations. A shuttle keypad is slidably mounted on the device with general function keys and buttons for providing such operations as entering and cursor movements and soft keys programmed to a selected application. The configuration of the touch sensitive screen is changed in response to the position of the shuttle keypad.
MainClaim: A user interface for an electronic device comprising: a touch sensitive display adaptable to multiple configurations; a shuttle keypad mounted on the electronic device for sliding motion over the touch sensitive display between multiple positions in which varying portions of said touch sensitive display are exposed to accommodate at least two of said multiple configurations and wherein the shuttle keypad is limited in size so that, in at least one of said multiple positions, the shuttle keypad divides said touch sensitive display into two portions.

2008/0088602	MULTI-FUNCTIONAL HAND-HELD DEVICE	Apple Inc.	HOTELLING; Steven P.	345	G09G	20071228	4	92%	☐

Abstract: Disclosed herein is a multi-functional hand-held device capable of configuring user inputs based on how the device is to be used. Preferably, the multi-functional hand-held device has at most only a few physical buttons, keys, or switches so that its display size can be substantially increased. The multi-functional hand-held device also incorporates a variety of input mechanisms, including touch sensitive screens, touch sensitive housings, display actuators, audio input, etc. The device also incorporates a user-configurable GUI for each of the multiple functions of the devices.
MainClaim: A hand-held multi-functional electronic device, comprising: a combined touch screen and user interface display; and a processing unit operatively connected to said touch screen and display, said processing unit capable of identifying and tracking a plurality of concurrent moving touch inputs from a user via said touch screen and discriminating a user requested action from the plurality of touch inputs; wherein the touch screen is adapted for recognition of a plurality of concurrent touchdown locations anywhere on the surface.

7,075,513	Zooming and panning content on a display screen	Nokia Corporation	Silfverberg; Miika | Korhonen; Panu | MacKenzie; Ian Scott	345	G09G	20010904	0	100%	☐

Abstract: A method and system for manipulating content displayed on a display screen is disclosed. A data processing device has two attached user input controls, such as touch pads, joysticks, and the like. One of the controls may be used for panning (i.e. scrolling up and down and/or left and right) content on the display screen, while the other control may simultaneously be used for zooming in and zooming out of content as it is displayed on the display screen. The zoom and pan increment levels may be smooth or stepped, depending on a user preference, to aid in navigation of the content displayed on the display screen.
MainClaim: A handheld device, comprising: a housing; a display screen on the front of the device; a first user input control on the back of the device, wherein the first user input control detects a direction of first user input; and a second user input control on the back of the device, wherein the second user input control detects a direction of second user input; wherein, when user input is received through the first user input control, content on the display screen is panned in a direction responsive to the detected direction of the first received user input, and wherein, when user input is received through the second user input control, content on the display screen is zoomed in or out responsive to the detected direction of the second received user input, the content on the display screen being zoomed in steps defined by a zoom-ratio, the zoom-ratio varying between a predetermined maximum zoom-ratio and a predetermined minimum zoom-ratio, wherein said zoom-ratio is defined by a content application.

2009/0153475	Use of a remote controller Z-direction input mechanism in a media system	Apple Inc.	Kerr; Duncan R. | King; Nicholas V.	345	G06F	20071214	1	93%	☐

Abstract: An electronic device associated with a remote wand controlling the operations of the electronic device is provided. The wand may include a motion detection component operative to provide an output reflecting the motion of the wand to the electronic device, such that the movements of a cursor displayed by the electronic device may be related to the output of the motion detection component. The wand may also include an input mechanism operative to receive user inputs. Using the input mechanism, the wand may detect a user's inputs and direct the electronic device to zoom or scroll displayed objects. The electronic device may display a screen saver by which the user may select particular media items for playback while remaining in the screen saver mode. In some embodiments, the electronic device may display video with a scroll bar that includes a preview window of the video.
MainClaim: A method for zooming a display of a plurality of objects by an electronic device, comprising:displaying a cursor controlled by the outputs of a motion detection component embedded in a wand coupled to the electronic device;displaying a plurality of ordered objects;receiving an output from a motion detection component embedded in the wand;moving a cursor over a particular one of the plurality of objects in response to receiving;detecting an input from an input mechanism of the wand; andin response to detecting, zooming the display of the plurality of ordered objects while maintaining the order.

2009/0153478	Centering a 3D remote controller in a media system	Apple Inc.	Kerr; Duncan R. | King; Nicholas V.	345	G06F	20071214	1	93%	☐

Abstract: An electronic device associated with a remote wand controlling the operations of the electronic device is provided. The wand may include a motion detection component operative to provide an output reflecting the motion of the wand to the electronic device, such that the movements of a cursor displayed by the electronic device may be related to the output of the motion detection component. The wand may also include an input mechanism operative to receive user inputs. Using the input mechanism, the wand may detect a user's inputs and direct the electronic device to zoom or scroll displayed objects. The electronic device may display a screen saver by which the user may select particular media items for playback while remaining in the screen saver mode. In some embodiments, the electronic device may display video with a scroll bar that includes a preview window of the video.
MainClaim: A method for centering a cursor displayed by an electronic device, the cursor controlled by a wand remote from and coupled to the electronic device, the method comprising:displaying a cursor controlled by the wand on a display;receiving a particular output associated with a particular movement of the wand from a motion detection component embedded in the wand; andin response to receiving, moving the cursor in the center of the display in a manner that does not match the particular movement of the wand.

2006/0026535	Mode-based graphical user interfaces for touch sensitive input devices	Apple Computer Inc.	Hotelling; Steve | Huppi; Brian Q. | Strickon; Joshua A. | Kerr; Duncan Robert | Ording; Bas | Chaudhri; Imran | Christie; Greg | Ive; Jonathan P.	715	G06F	20050118	4	93%	☐

Abstract: A user interface method is disclosed. The method includes detecting a touch and then determining a user

interface mode when a touch is detected. The method further includes activating one or more GUI elements based on the user interface mode and in response to the detected touch.
MainClaim: A user interface method, comprising: detecting a touch; determining a user interface mode when a touch is detected; displaying one or more GUI elements based on the user interface mode; and enabling the functionality of the GUI element.

7,716,580	Web page title shortening	Nokia Corporation	Roto; Virpi | Vartiainen; Elina | Popescu; Andrei | Grassel; Guido | Myllyia; Salla | Rautava; Mika	715	G06F	20050630	0	100%	☐

Abstract: A method for shortening a web page title. The method includes determining if a title of a current web page fits in a title display area of a display. If the title fits the title is displayed in the title area. If the title does not fit, it is determined if the title of the current web page starts with a same word as a title of a previous page. If the title of the current web page starts with the same word, at least one word is removed from a beginning portion of the title of the current page that is in common with the title of the previous page, until the title of the current page fits in the title display area, or there are no more common words in the beginning of the title. End words or letters or end words can be removed until the title fits. Missing words may be indicated by adding a predetermined indicator in the area of the missing or removed words.
MainClaim: A method comprising: determining that a title of a current web page does not fit in a title display area of a display; removing at least one word from the title of the current page until the title of the current page fits in the title display area wherein removing the at least one word comprises: determining, by a processor, that the title of the current web page starts with at least one same word as a title of a previous page; and removing at least one word from a beginning portion of the title of the current page that is in common with the title of the previous page; and determining that there is at least one common word in between an end portion of the current title and an end portion of the previous title and removing the at least one common word.

2010/0082670	MULTIPLE SEARCHING IN A WEB BROWSER INTERFACE	Apple Inc.	Chan; Ada Y. | Falkenburg; Steven J.	707	G06F	20080930	1	93%	☐

Abstract: Input is received from a user that indicates a selection of a hierarchical group of websites from a bookmark hierarchy in a web browser. In response, a modal dialog is opened to allow text input from the user. Text input is received via the modal dialog. The text input is supplied to each of the websites in the hierarchical group, causing each website in the group to produce a search result for the text input. Each of the search results is presented substantially simultaneously in a separate webpage associated with a respective website in the hierarchical group.
MainClaim: A method, comprising:receiving input from a user indicating a selection of a hierarchical group of websites from a bookmark hierarchy in a web browser;opening a modal dialog to allow text input from the user in a response to the selection;receiving text input via the modal dialog;supplying the text input to each of the websites in the hierarchical group to cause each website in the group to produce a search result for the text input; andpresenting each of the search results substantially simultaneously in a separate webpage associated with a respective website in the hierarchical group.

2008/0046840	SYSTEMS AND METHODS FOR PRESENTING DATA ITEMS	Apple Inc.	Melton; Don | Ording; Bas	715	G06F	20071030	2	92%	☐

Abstract: Systems, methods, and software for presenting data are described. Previously accessed data items are presented in a manner that is non-chronological relative to when the data items were accessed. The presentation optionally includes an indication of a significance of the data item with the representation.
MainClaim: In a graphical user interface, a method comprising: receiving a selection of a data item; updating a list of previously accessed data items in response to the selection; and graphically presenting a history of previously accessed data items, the history organized by one or more common features determined from the data items in the list.

2007/0162298	SYSTEMS AND METHODS FOR PRESENTING DATA ITEMS	Apple Computer, Inc.	Melton; Don | Ording; Bas	705	G06F	20070105	2	92%	☐

Abstract: Systems, methods, and software for presenting data are described. Previously accessed data items are presented in a manner that is non-chronological relative to when the data items were accessed. The presentation optionally includes an indication of a significance of the data item with the representation.
MainClaim: A method of presenting indications of previously visited web pages, the method comprising the acts of: determining that a first of a plurality of indications of previously visited web pages satisfies a criteria for significance; and emphasizing the first indication over other indications in a manner that is perceptible to a user.

7,594,194	Portrayal of navigation objects	Nokia Corporation	Makela; Mikko	715	G06F	20030924	0	100%	☐

Abstract: The invention relates to a method, a device, a computer program product, a browser and a network element for improved portrayal of navigation objects (1-1 . . . 1-6), wherein at least two navigation objects (1-1 . . . 1-6) are combined into one combined navigation object (4), wherein said combined navigation object (4) is presented, and wherein said at least two navigation objects (1-1 . . . 1-6) are presented, if said combined navigation object (4) is selected.
MainClaim: A method, comprising: scaling a web page that comprises an image map and further content to obtain a scaled web page, wherein said image map contains at least two image hyperlinks, making the scaled version of said image map in said scaled web page selectable as a whole; presenting said scaled web page on a display, and presenting

only said image map with said at least two hyperlinks in unscaled format in response to a selection of said selectable scaled version of said image map.

2008/0307308	Creating Web Clips	APPLE INC.	Sullivan; John | Decker; Kevin | Serlet; Bertrand	715	G06F	20070608	1	95%	☐

Abstract: Methods, computer program products, systems and data structures are described to assist a user in identifying a number of potential areas of interest and selecting an area of interest suitable for clipping as the user navigates around a content source. In some implementations, the content source can be parsed and evaluated to identify one or more structural elements that may contain one or more potential areas of interest. The identified elements are then presented to the user.
MainClaim: A method, comprising:receiving input to select a portion of a document corresponding to an area of interest associated with a clipping;identifying a structural element associated with the portion;determining a boundary associated with the structural element; andtriggering a visual impression indicating the structural element.

2007/0106952	PRESENTING AND MANAGING CLIPPED CONTENT	Apple Computer, Inc.	Matas; Mike | Forstall; Scott | Chaudhri; Imran A.	715	G06F	20060901	1	95%	☐

Abstract: An area of interest can be defined in a content presentation and a clip can be created that contains content associated with the area of interest. The clip can be presented with other clippings in a clipping page where it can be edited by a user. The clipping page can be stored as a web page or other content source, so that the clipping page can be shared with other users. The clippings can be refreshed in accordance with a selectable refresh scheme.
MainClaim: A method comprising: providing a user interface for presentation on a display device, the user interface including a display area for displaying content; selecting a portion of content from the display area; clipping the selected portion of content; and presenting the clipping in a clipping page.

2009/0044134	DYNAMIC INTERFACES FOR PRODUCTIVITY APPLICATIONS	Apple Inc	Cave; Richard | Ward; Simon	715	G06F	20080806	2	93%	☐

Abstract: Systems, methods, and computer readable media for providing improved user interfaces for productivity applications are provided. In some embodiments, when a user inputs data into a document, the interface can determine what the format is for that data, such as a text format or an image format. The interface can then remove any presented icons, which can be in the form of a toolbar, not useful for the selected data format and provide icons that are useful for the selected data format. The icons provided can be a predetermined set of icons selected by the designer of the user interface or can be a custom set of icons preselected by a user of the interface.
MainClaim: A method of providing a dynamic interface for a productivity application comprising:displaying one or more first options associated with a first user action type in the dynamic interface;detecting a change in the user action type from the first user action type to a second user action type;removing the one or more first options from within the dynamic interface when the change is detected; anddisplaying one or more second options associated with the second user action type in the dynamic interface.

7,692,637	User input device for electronic device	Nokia Corporation	Davis; Scott	345	G06F	20050426	0	100%	☐

Abstract: A user input device for controlling the movement of a cursor in a graphical user interface (GUI) includes a touch sensitive surface arranged to provide a pre-defined number of touch sensitive surface areas substantially continuous with one another each of which is associated with a corresponding pre-defined functionality. Touching contact with the given surface area causes the cursor to move in the corresponding direction or to stop. The speed of the cursor is controlled by the touching contact which may be a sliding, tapping, pressure or other suitable contact.
MainClaim: An electronic device comprising: a user input device comprising: a touch sensitive surface arranged in and forming a part of a surface of the electronic device and being arranged to provide a desired number of pre-defined touch sensitive surface areas each of said touch sensitive surface areas being associated with a respective corresponding pre-defined functionality; appropriate control circuitry responsive to a touching contact with a said touch sensitive surface area configured to control the velocity and direction of movement of a cursor in a display graphic shown on a screen carried by the electronic device wherein: a first pre-defined touch sensitive surface area comprises a first pre-defined functionality configured to cause the cursor to move in a corresponding first direction in response to a sliding motion touching contact with said first pre-defined touch sensitive surface area in a first direction on said first pre-defined touch sensitive surface area to accelerate the cursor movement in said corresponding first direction and in a second direction opposite said first direction on said first pre-defined touch sensitive surface area to decelerate the cursor movement in said corresponding first direction; a second pre-defined touch sensitive surface area comprises a second pre-defined functionality configured to cause the cursor to move in a corresponding second direction in response to a sliding motion touching contact with said second pre-defined touch sensitive surface area in a first direction on said second pre-defined touch sensitive surface area to accelerate the cursor movement in said corresponding second direction and in a second direction on said second pre-defined touch sensitive surface area for decelerating the cursor movement in said corresponding second direction; and a third pre-defined touch sensitive surface area comprises a third pre-defined functionality configured to cause the cursor to stop movement in response to a touching contact with said third pre-defined touch sensitive surface area.

2008/0204426	GESTURES FOR TOUCH SENSITIVE INPUT DEVICES	Apple Inc.	Hotelling; Steve | Strickon; Joshua A. | Huppi; Brian O. | Chaudhri; Imran | Christie; Greg | Ording; Bas | Kerr; Duncan Robert | Ive; Jonathan P.	345	G06F	20080415	1	92%	☐

Abstract: Methods and systems for processing touch inputs are disclosed. The invention in one respect includes reading data from a multipoint sensing device such as a multipoint touch screen where the data pertains to touch input with respect to the multipoint sensing device, and identifying at least one multipoint gesture based on the data from the multipoint sensing device.
MainClaim: A touch-based method, comprising:(a) detecting a user input that occurs over a multipoint sensing screen or pad, the user input including one or more inputs, each input having a unique identifier;(b) during the user input, classifying the user input as a tracking or selecting input when the user input includes one unique identifier or a gesture input when the user input includes at least two unique identifiers;(c) performing tracking or selecting during the user input when the user input is classified as a tracking or selecting input;(d) performing one or more control actions during the user input when the user input is classified as a gesturing input.

2008/0211783	GESTURES FOR TOUCH SENSITIVE INPUT DEVICES	APPLE INC.	Hotelling; Steve | Strickon; Joshua A. | Huppi; Brian O. | Chaudhri; Imran | Christie; Greg | Ording; Bas | Kerr; Duncan Robert | Ive; Jonathan P.	345	G06F	20080509	1	92%	☐

Abstract: Methods and systems for processing touch inputs are disclosed. The invention in one respect includes reading data from a multipoint sensing device such as a multipoint touch screen where the data pertains to touch input with respect to the multipoint sensing device, and identifying at least one multipoint gesture based on the data from the multipoint sensing device.
MainClaim: A computer implemented method for initiating zooming targets via a touch screen, the method comprising:displaying an image on a GU;enlarging the image for a period of time when the presence of an object is detected over the image.

2008/0211775	GESTURES FOR TOUCH SENSITIVE INPUT DEVICES	APPLE INC.	Hotelling; Steve | Strickon; Joshua A. | Huppi; Brian O. | Chaudhri; Imran | Christie; Greg | Ording; Bas | Kerr; Duncan Robert | Ive; Jonathan P.	345	G06F	20080509	1	92%	☐

Abstract: Methods and systems for processing touch inputs are disclosed. The invention in one respect includes reading data from a multipoint sensing device such as a multipoint touch screen where the data pertains to touch input with respect to the multipoint sensing device, and identifying at least one multipoint gesture based on the data from the multipoint sensing device.
MainClaim: A method of simulating a keyboard, comprising:providing a display and a touch screen positioned over the display;displaying a keyboard on the display, the keyboard including at least a first and a second key;detecting the presence of a first object over the first key and a second object over the second key at the same time; andgenerating a single control function in response to the detection of said first object over the first key and said second object over said second key.

7,609,268	Arrangement for the scaling of fonts	Nokia Corporation	Kotiranta; Atte	345	G06T	20041230	0	100%	☐

Abstract: The invention relates to a method for presenting a character by using a scalable vector font. In the method, for said scalable vector font, at least first and second scalable vector fonts are defined, which are alternatives to each other. For optimizing the readability of the character, one of said at least first and second scalable vector fonts is selected to be used for presenting the character. The invention also relates to an electronic device, a computer software product, and a system.
MainClaim: A method for execution in a device for outputting a character by using a scalable vector font, comprising creating in the device, for said scalable vector font, at least a first scalable embedded vector font and a second scalable embedded vector font, which are alternatives to each other, and determining in the device, for a selected size for said character, if there are embedded vector fonts defined and, if not, scaling in the device the scalable vector font to the selected size using said scalable vector font but, if so, for optimizing in the device readability of the character, selecting one of said at least first scalable embedded vector font and second scalable embedded vector font for use in said outputting the character on an output device.

7,692,656	Automatic synthesis of font tables for character layout	Apple Inc.	Opstad; David G. | Beaman; Alexander B.	345	G06T	20060620	1	93%	☐

Abstract: Data tables that are required for the proper processing of font glyphs are automatically synthesized if they do not form part of an original font definition. The synthesized tables are stored in an annex file that is associated with the font, rather than being incorporated into the font definition. As a result, the integrity of the original font data is maintained, and does not adversely affect font protection systems that are based upon font data.
MainClaim: A method for automatically synthesizing a data table that contains information about glyphs in a font, comprising the steps of: in response to a request from an imaging system in a computer for a table in a font, determining, in the computer, whether the font contains the requested table; if the font is determined not to contain the requested table, building a font map in memory of the computer that contains information about individual glyphs in the font; determining, in the computer, relationships between items of information in the font map; and constructing, in memory of the computer, a table which identifies said relationships.

2006/0232588	Automatic synthesis of font tables for	Apple Computer,	Opstad; David G. | Beaman;	345	G06T	20060620	1	93%	

	character layout	Inc.	Alexander B.						☐

Abstract: Data tables that are required for the proper processing of font glyphs are automatically synthesized if they do not form part of an original font definition. The synthesized tables are stored in an annex file that is associated with the font, rather than being incorporated into the font definition. As a result, the integrity of the original font data is maintained, and does not adversely affect font protection systems that are based upon font data.
MainClaim: A method for automatically synthesizing a data table that contains information about glyphs in a font, comprising the steps of: in response to a request for a table in a font, determining whether the font contains the requested table; if the font is determined not to contain the requested table, building a font map that contains information about individual glyphs in the font; determining relationships between items of information in the font map; and constructing a table which identifies said relationships.

6,976,228	Graphical user interface comprising intersecting scroll bar for selection of content	Nokia Corporation	Bernhardson; Marcus	715	G06F	20010627	0	100%	☐

Abstract: A digital interactive television set has a graphical user interface for displaying content from a plurality of different sources on its screen e.g. from digital satellite or cable broadcasts or through the Internet, the interface comprising: a focus region (**16**), and horizontally and vertically extending scroll bars (H, V) which each comprise a plurality of scroll bar elements that can be scrolled successively through the focus region, the scroll bar elements of the horizontal scroll bar signifying groupings of content sources. Elements of the horizontal scroll bar are scrolled individually into the focus region, and the scroll bar elements of the vertical scroll bar signify content sources which are included within a grouping thereof associated with the individual element of the horizontal scroll bar, so that the scroll bar elements of the vertical scroll bar can then be scrolled through the focus region to select a content source of the grouping. The scroll bar elements of the horizontal scroll bar comprise a three dimensional depiction of more than one of the content source groupings, and an individual one of the groupings may be selected from the three dimensional depiction for the focus region. The three dimensional elements are the horizontal scroll bar may comprise rectangular blocks that are rotatable about a common longitudinal axis.
MainClaim: A device to provide a graphical user interface for selecting content from a plurality of sources thereof, the user interface comprising:

first and second transversely extending and intersecting scroll bars which each comprise a plurality of scroll bar elements that can be scrolled successively through a focus region positioned at an intersection between the first and second scroll bars;

the scroll bar elements of the first scroll bar signifying groupings of content sources, such that when elements of the first scroll bar are scrolled individually into the focus region, the scroll bar elements of the second scroll bar signify content sources which are included within a grouping thereof associated with the individual element of the first scroll bar, whereby the scroll bar elements of the second scroll bar can be scrolled through the focus region to select a content source of the grouping;

at least one of the scroll bar elements of the first scroll bar being preprogrammed to comprise a multiple depiction of more than one of said content source groupings, whereby an individual one of the groupings may be selected from the multiple depiction for the focus region; and

a viewing region for viewing the contents associated with said content sources selected in dependence on the depiction in the focus region.

2007/0189737	Multimedia control center	Apple Computer, Inc.	Chaudhri; Imran | Madden; Thomas | Forstall; Scott | Kerr; Duncan Robert | King; Nick | Lemay; Stephen O. | Fabrick; Richard W. II | Ording; Bas | Seymour; Eric | van Os; Marcel	386	H04N	20051011	1	92%	☐

Abstract: Techniques and systems for centralized access to multimedia content stored on or available to a computing device are disclosed. The centralized access can be provided by a media control interface that receives user inputs and interacts with media programs resident on the computing device to produce graphical user interfaces that can be presented on a display device.
MainClaim: A main menu associated with a media control center, said main menu comprising: a plurality of media icons, each media icon representing a different media feature of a multimedia control center, the media icons being arranged along a closed path and at preset icon positions along the closed path, the media icons moving as a group around the closed path between icon positions in accordance with a navigation signal.

2008/0155459	ASSOCIATING KEYWORDS TO MEDIA	APPLE INC.	Ubillos; Randy	715	G06F	20070608	1	92%	☐

Abstract: A computer-implemented method includes displaying, within a user interface in a digital media system, a media pane and a tools pane, displaying, within the media pane, a thumbnail group representing a media item, the

thumbnail group including one or more thumbnails, displaying, within the tools pane, a tool configured to assign a keyword, enabling a user to select a segment of the media item, and enabling a user to assign a keyword to the selected segment by activating the tool.
MainClaim: A computer-implemented method comprising:displaying, within a user interface in a digital media system, a media pane and a tools pane;displaying, within the media pane, a thumbnail group representing a media item, the thumbnail group comprising one or more thumbnails;displaying, within the tools pane, a tool configured to assign a keyword; andenabling a user to assign the keyword to a selected segment of the thumbnail group by activating the tool.

2007/0083911	Intelligent media navigation	Apple Computer, Inc.	Madden; Thomas | Seymour; Eric | Forstall; Scott | Vigil; Celia | Chaudhri; Imran	725	H04N	20051011	1	92%	☐

Abstract: Techniques and systems for intelligent navigation of sequential media content are disclosed. The intelligent navigation is well suited to enable users to better control media playback with regards to a media playback application operating on a computing device.
MainClaim: A method for playing sequential media content by a media playback application operating on a computing device, said method comprising: (a) initiating playing of the sequential media content by the media playback application; (b) receiving a user input requesting to start playing at a new position in the sequential media content; (c) marking a current position in the sequential media content; (d) thereafter initiating playing of the sequential media content at the new position; (e) receiving a user input requesting to reset playing to the marked current position; and (f) subsequently initiating playing of the sequential media content at the marked current position.

7,356,769	Method and apparatus for providing inputs to a communication or computing device	Nokia Corporation	Lehtonen; Jarmo	715	G06F	20031007	0	100%	☐

Abstract: A miniaturized user input device or input button (14) for a computing or communication device, such as a personal digital assistant device or a mobile phone. A user provides inputs to the computing or communication device by inserting an end (12) of a pen or other indicator instrument (11) into a receptacle (14a) of the input button (14) and applying a force, as a result of which the input button (14) actually or only barely perceptibly moves or deforms. Sensors (14b-c) proximate to the input button (14) detect the moving or deforming and provide signals corresponding the moving or deforming, and so corresponding to the user input.
MainClaim: An apparatus for use in providing user inputs to a communication or computing device, comprising: an input button provided as a flattened shape lying in or on and nearly flush with a surface of the communication or computing device so as to have an exposed surface and having a receptacle formed on the exposed surface for receiving an end portion of an indicator instrument; and means disposed proximate to the receptacle for detecting a force exerted on the input button via the indicator instrument based on the input button moving or deforming in response to the force, and for providing a signal corresponding to the force, said means comprising motion or strain sensors disposed on opposite sides of the input button and configured to detect a rotational force, said rotational force caused by the indicator instrument simultaneously pushing down on one side and pushing up and away on an opposite side.

2006/0181517	Display actuator	Apple Computer, Inc.	Zadesky; Stephen Paul | Ive; Jonathan P. | Stringer; Christopher J. | Rohrbach; Matthew Dean	345	G09G	20050211	1	92%	☐

Abstract: A display device that both displays visual information and that serves as a mechanical actuator to generate input signals is disclosed (i.e., display device is not only an output device, but also a mechanically actuated input device). By way of example, the display device, which displays visual information such as text, characters and graphics, may also act like a push or clickable button(s), a sliding toggle button or switch, a rotating dial or knob, a motion controlling device such as a joystick or navigation pad, and/or the like. The display actuator may be incorporated into any electronic device to control various aspects of the electronic device. Alternatively, the display actuator may be a stand alone device that operatively couples to an electronic devices through wired or wireless connections. In either case, the display actuator can be configured to generate commands, make selections and/or control movements in a display.
MainClaim: An integral input/output device, comprising: a display that moves relative to a frame; and a movement detection mechanism configured to generate signals when the display is moved, the signals being indicative of at least one predetermined movement of the display.

6,480,185	Electronic device with trackball user input	Nokia Mobile Phones Limited	Kiljander; Harri J | Deeds; Douglas A	345	G09G	19990728	0	100%	☐

Abstract: A portable radio telephone comprising a housing, a transceiver located in the housing, a controller connected to the transceiver, a display connected to the controller, and a user input device connected to the controller. The user input device comprises a trackball movably connected to the housing and at least one trackball rotational position sensor connected to the controller for sensing rotational movement of the trackball. The sensor includes a roller which rides against an exterior surface of the trackball. The user input device is configured to provide biased stepwise movements of the roller as the trackball is rotated by a user.
MainClaim: A trackball user input device comprising:

a user actuated trackball; and

a first trackball position sensor located at an exterior side of the trackball, the sensor comprising a first roller rotatably contacting the exterior side of the trackball,

wherein the trackball is rotatable about orthogonal axes and the exterior side of the trackball or the sensor is shaped to provide a predetermined biased rotational stepped movement of the roller as the trackball and roller are rotated relative to each other.

7,084,856	Mouse having a rotary dial	Apple Computer, Inc.	Huppi; Brian	345	G09G	20020207	1	92%	☐

Abstract: A user operated input device is disclosed. The user operated input device includes a housing and a rotary dial positioned relative to an external surface of the housing. The rotary dial provides a control function.
MainClaim: A computer mouse, comprising a housing and a rotary dial positioned to take up a portion of the front of an external surface of the housing, the housing providing a platform for sliding the mouse along a surface in order to move a cursor or pointer on a display screen of a computer system, the rotary dial rotating around an axis in order to implement a control function in the computer system, the rotary dial rotating within a plane that is substantially parallel to the external surface of the housing, the rotary dial having an engageable face for allowing a user to facilitate rotation of the rotary dial, the engageable face being completely exposed to the user, the mouse housing serving as a button of the computer mouse and providing a clicking action for performing an action with respect to the computer system, wherein the mouse housing has no separate mechanical buttons disposed thereon.

2003/0076303	Mouse having a rotary dial	Apple Computers, Inc.	Huppi, Brian	345	G09G	20020207	1	92%	☐

Abstract: A user operated input device is disclosed. The user operated input device includes a housing and a rotary dial positioned relative to an external surface of the housing. The rotary dial provides a control function.
MainClaim: A user operated input device comprising a housing and a rotary dial positioned relative to an external surface of the housing, the rotary dial providing a control function.

7,139,697	Determining language for character sequence	Nokia Mobile Phones Limited	Hakkinen; Juha | Mettala; Markku	704	G06F	20020327	0	100%	☐

Abstract: A method for selecting the language for a character sequence fed into a data processing device, wherein decision trees are trained for different characters on the basis of lexicons of predetermined languages. The decision trees describe language probabilities on the basis of characters in the environments of the characters. The decision trees for at least some of the characters of the character sequence fed into the data processing device are traversed, thus obtaining a probability of at least one language for each character. The language for the character sequence is selected on the basis of the probabilities obtained.
MainClaim: A method for selecting the language for a character sequence fed into a data processing device, the method comprising: storing in the data processing device character-specific decision trees to describe probabilities for at least two different languages on the basis of characters in the environments of the characters, traversing the decision trees for at least some of the characters of the character sequence fed into the data processing device, thus obtaining a probability of at least one language for each character, and selecting the language for the character sequence on the basis of said language probabilities.

7,289,950	Extended finite state grammar for speech recognition systems	Apple Inc.	Bellegarda; Jerome R. | Silverman; Kim E. A.	704	G06F	20040921	3	92%	☐

Abstract: An extended finite state grammar structure is generated from a finite state grammar. The extended finite state grammar structure includes word subgraphs representing a set of pre-defined word strings for words in the finite state grammar, and a set of all possible word strings for the words. The extended finite state grammar structure can be used to transform audio input into one or more of the word strings.
MainClaim: A computerized method comprising: generating an extended finite state grammar structure comprising a first word sub-graph representing a set of pre-defined word strings for words in a finite state grammar, and a second word sub-graph representing a set of all possible word strings for the words in the finite state grammar, wherein the extended finite state grammar structure is subsequently used to transform audio input into at least one of the word strings.

7,313,523	Method and apparatus for assigning word prominence to new or previous information in speech synthesis	Apple Inc.	Bellegarda; Jerome R. | Silverman; Kim E. A.	704	G10L	20030514	2	92%	☐

Abstract: A method and apparatus is provided for generating speech that sounds more natural. In one embodiment, word prominence and latent semantic analysis are used to generate more natural sounding speech. A method for generating speech that sounds more natural may comprise generating synthesized speech having certain word prominence characteristics and applying a semantically-driven word prominence assignment model to specify word prominence consistent with the way humans assign word prominence. A speech representative of a current sentence is generated. The determination is made whether information in the current sentence is new or previously given in accordance with a semantic relationship between the current sentence and a number of preceding sentences. A word prominence is assigned to a word in the current sentence in accordance with the information determination.
MainClaim: An apparatus for assigning word prominence in synthetic speech comprising: a memory having stored thereon a set of instructions; and a processing device coupled with the memory, the processing device, when executing the set of instructions, to generate a speech representative of a current sentence, determine whether an information in the current sentence is new or previously given based on a semantic relationship between the current sentence and a number of preceding sentences, and assign a word prominence to a word in the current sentence in accordance with the

information determination.

7,702,509	Unsupervised data-driven pronunciation modeling	Apple Inc.	Bellegarda; Jerome R.	704	G10L	20061121	2	92%	☐

Abstract: Pronunciation for an input word is modeled by generating a set of candidate phoneme strings having pronunciations close to the input word in an orthographic space. Phoneme sub-strings in the set are selected as the pronunciation. In one aspect, a first closeness measure between phoneme strings for words chosen from a dictionary and contexts within the input word is used to determine the candidate phoneme strings. The words are chosen from the dictionary based on a second closeness measure between a representation of the input word in the orthographic space and orthographic anchors corresponding to the words in the dictionary. In another aspect, the phoneme sub-strings are selected by aligning the candidate phoneme strings on common phoneme sub-strings to produce an occurrence count, which is used to choose the phoneme sub-strings for the pronunciation.
MainClaim: A computerized method comprising: receiving pronunciation data for an out-of-vocabulary word, the pronunciation data comprising phoneme sub-strings selected from candidate phoneme strings having pronunciation data associated with orthographic anchors that are close to a vector representation of the out-of-vocabulary word in an orthographical vector space defined by a dictionary; and reproducing the pronunciation data for the out-of-vocabulary word as an audible signal.

7,043,431	Multilingual speech recognition system using text derived recognition models	Nokia Corporation	Riis; So | Jensen; Ka | Pedersen; Morten With	704	G10L	20010831	0	100%	☐

Abstract: There is provided a novel approach for generating multilingual text-to-phoneme mappings for use in multilingual speech recognition systems. The multilingual mappings are based on the weighted output from a neural network text-to-phoneme model, trained on data mixed from several languages. The multilingual mappings used together with a branched grammar decoding scheme is able to capture both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent recognition systems. A significant improvement in overall system performance is obtained for a multilingual speaker independent name dialing task when applying multilingual instead of language dependent text-to-phoneme mapping.
MainClaim: A method of speech recognition in order to identify a speech command as a match to a written text command comprising the steps: providing a text input from a text database; receiving an acoustic input; generating sequences of multilingual phoneme symbols based on said text input by means of a multilingual text-to-phoneme module; generating variations of pronunciations which are recognizable in response to said sequences of multilingual phoneme symbols determined by use of a branched grammar; and comparing said variations of pronunciations with the acoustic input in order to find a match.

7,289,950	Extended finite state grammar for speech recognition systems	Apple Inc.	Bellegarda; Jerome R. | Silverman; Kim E. A.	704	G06F	20040921	3	95%	☐

Abstract: An extended finite state grammar structure is generated from a finite state grammar. The extended finite state grammar structure includes word subgraphs representing a set of pre-defined word strings for words in the finite state grammar, and a set of all possible word strings for the words. The extended finite state grammar structure can be used to transform audio input into one or more of the word strings.
MainClaim: A computerized method comprising: generating an extended finite state grammar structure comprising a first word sub-graph representing a set of pre-defined word strings for words in a finite state grammar, and a second word sub-graph representing a set of all possible word strings for the words in the finite state grammar, wherein the extended finite state grammar structure is subsequently used to transform audio input into at least one of the word strings.

7,313,523	Method and apparatus for assigning word prominence to new or previous information in speech synthesis	Apple Inc.	Bellegarda; Jerome R. | Silverman; Kim E. A.	704	G10L	20030514	2	93%	☐

Abstract: A method and apparatus is provided for generating speech that sounds more natural. In one embodiment, word prominence and latent semantic analysis are used to generate more natural sounding speech. A method for generating speech that sounds more natural may comprise generating synthesized speech having certain word prominence characteristics and applying a semantically-driven word prominence assignment model to specify word prominence consistent with the way humans assign word prominence. A speech representative of a current sentence is generated. The determination is made whether information in the current sentence is new or previously given in accordance with a semantic relationship between the current sentence and a number of preceding sentences. A word prominence is assigned to a word in the current sentence in accordance with the information determination.
MainClaim: An apparatus for assigning word prominence in synthetic speech comprising: a memory having stored thereon a set of instructions; and a processing device coupled with the memory, the processing device, when executing the set of instructions, to generate a speech representative of a current sentence, determine whether an information in the current sentence is new or previously given based on a semantic relationship between the current sentence and a number of preceding sentences, and assign a word prominence to a word in the current sentence in accordance with the information determination.

6,778,952	Method for dynamic context scope selection in hybrid N-gram+LSA language modeling	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G06F	20020912	2	93%	☐

Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.
MainClaim: A method comprising:

computing a plurality of global probabilities of an input word based on a context having a dynamic scope determined by discounting words observed prior to the input word according to an exponential function, the context represented by a vector in a latent semantic analysis (LSA) space, wherein the vector representation is generated from at least one decomposition matrix of a singular value decomposition of a co-occurrence matrix, W, between M words in a vocabulary V and N documents in a text corpus T and wherein the vector representation v_q at time q is defined as ##EQU6##

where n_q is the number of words observed up to time q, n_p is the number of words observed up to time p, i_p is the index of the word observed at time p, εi_p is the normalized entropy of the word observed at time p within T, $0<\lambda\leq 1$, ui_p is the left singular vector at time p of the singular value decomposition of W, and S is the diagonal matrix of singular values of the singular value decomposition of W;

computing a plurality of local probabilities of the input word; and

combining the local probabilities and the global probabilities to produce a language model probability for the input word.

7,181,388	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G06F	20021111	0	100%	☐

Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.
MainClaim: A method for pre-processing a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units, the method comprising: aligning said sequence of character units and said sequence of phoneme units using a statistical algorithm so that the alignment between said character units and said phoneme units is determined; and interleaving said aligned sequence of character units and said aligned sequence of phoneme units by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.

RE40,458	System and method for using a correspondence table to compress a pronunciation guide	Apple Inc.	Fredenburg; Timothy	704	G06F	20030113	1	95%	☐

Abstract: Parsing routines extract from a conventional pronunciation dictionary an entry, which includes a dictionary word and dictionary phonemes representing the pronunciation of the dictionary word. A correspondence table is used to compress the pronunciation dictionary. The correspondence table includes correspondence sets for a particular language, each set having a correspondence text entry, a correspondence phoneme entry representing the pronunciation of the correspondence text entry and a unique correspondence set identifying symbol. A matching system compares a dictionary entry with the correspondence sets, and replaces the dictionary entry with the symbols representing the best matches. In the absence of a match, symbols representing silent text or unmatched phonemes can be used. The correspondence symbols representing the best matches provide compressed pronunciation dictionary entries. The matching system also generates decoder code sets for subsequently translating the symbol sets. A decoder system uses the decoder code sets for translating symbol sets in the compressed pronunciation dictionary to generate phonemes corresponding to selected text.
MainClaim: A computer .[.data storage medium storing a correspondence table which enables compression of.]. .Iadd.program product for compressing .Iaddend.a pronunciation dictionary, the .Iadd.computer program product comprising a computer-readable medium containing computer program code for: generating a .Iaddend.correspondence table comprising: a plurality of correspondence sets each including a correspondence text entry that is part of a dictionary word; a correspondence phoneme entry representing the pronunciation of the correspondence text entry; and a correspondence symbol for identifying the correspondence set, wherein at least one said correspondence symbol forms a symbol set for use as a compressed data entry in generating said compressed pronunciation dictionary.

7,289,950	Extended finite state grammar for speech recognition systems	Apple Inc.	Bellegarda; Jerome R. | Silverman; Kim E. A.	704	G06F	20040921	3	94%	☐

Abstract: An extended finite state grammar structure is generated from a finite state grammar. The extended finite state grammar structure includes word subgraphs representing a set of pre-defined word strings for words in the finite state grammar, and a set of all possible word strings for the words. The extended finite state grammar structure can be used to transform audio input into one or more of the word strings.
MainClaim: A computerized method comprising: generating an extended finite state grammar structure comprising a first word sub-graph representing a set of pre-defined word strings for words in a finite state grammar, and a second word sub-graph representing a set of all possible word strings for the words in the finite state grammar, wherein the extended finite state grammar structure is subsequently used to transform audio input into at least one of the word

strings.

7,702,509	Unsupervised data-driven pronunciation modeling	Apple Inc.	Bellegarda; Jerome R.	704	G10L	20061121	2	93%	☐

Abstract: Pronunciation for an input word is modeled by generating a set of candidate phoneme strings having pronunciations close to the input word in an orthographic space. Phoneme sub-strings in the set are selected as the pronunciation. In one aspect, a first closeness measure between phoneme strings for words chosen from a dictionary and contexts within the input word is used to determine the candidate phoneme strings. The words are chosen from the dictionary based on a second closeness measure between a representation of the input word in the orthographic space and orthographic anchors corresponding to the words in the dictionary. In another aspect, the phoneme sub-strings are selected by aligning the candidate phoneme strings on common phoneme sub-strings to produce an occurrence count, which is used to choose the phoneme sub-strings for the pronunciation.
MainClaim: A computerized method comprising: receiving pronunciation data for an out-of-vocabulary word, the pronunciation data comprising phoneme sub-strings selected from candidate phoneme strings having pronunciation data associated with orthographic anchors that are close to a vector representation of the out-of-vocabulary word in an orthographical vector space defined by a dictionary; and reproducing the pronunciation data for the out-of-vocabulary word as an audible signal.

5,640,485	Speech recognition method and system	Nokia Mobile Phones Ltd.	Ranta; Jukka Tapio	704	G10L	19950406	0	100%	☐

Abstract: The present invention relates to a speech recognition method and a system for a speech-controllable telephone in which a value is computed (2) for a reference word with a speech recognizer (8) on the basis of a word uttered by a user, and a recognition resolution (6a, 6b) is made on the basis of said value. Prior to making said recognition resolution, it is found out (3) if repetition of a previous word is in question, and if so, a new value is computed (5) for the reference word on the basis of the value computed by the speech recognizer and of a value in the memory, computed earlier for the reference word, and a recognition resolution (6a, 6b) is made on the basis of said computed new value.
MainClaim: Speech recognition apparatus, comprising:

word recognition means operative during a word recognition mode of operation for comparing a first word uttered by a user with a predetermined reference word and for outputting a respective first value that indicates an amount of similarity between the first word uttered by the user and a respective predetermined reference word;

processing means having an input coupled to an output of said word recognition means for receiving a respective first value that is outputted by said word recognition means in response to said first word uttered by the user;

memory means coupled to said processing means, said processing means being responsive for storing the respective first value in said memory means upon an occurrence of a condition such that a respective first value is less than a predetermined threshold value,

said processing means determining a revised first value when a respective second value is outputted from said word recognition means in response to the user uttering a second word, the revised first value being determined from the respective second value and from the stored respective first value, said revised first value indicating an amount of similarity between the second word uttered by the user and the respective predetermined reference word that is associated with said revised first value; and

indicator means responsive to a condition such that a respective or revised value is equal to or greater than a predetermined threshold value, for indicating that said second word uttered by the user corresponds to the respective predetermined reference word.

5,706,397	Speech recognition system with multi-level pruning for acoustic matching	Apple Computer, Inc.	Chow; Yen-Lu	704	G10L	19951005	1	92%	☐

Abstract: A method of constructing a new active list of phone models from an existing active list of phone models during acoustic matching of a speech recognition system is described. A vector quantized speech vector is compared against each of the phone models in the existing active list to obtain a phone best score for each of the phone models of the existing active list. A best phone best score is determined among all the phone best scores of the phone models to obtain a global best score. A phone model of the phone models from the existing active list is added to the new active list of phone models if the phone best score of that phone model is within a first predetermined value of the global best score. A next phone model of the existing phone of the existing active list is added to the new active list if the phone ending score of that existing phone is within a second predetermined value of a best score of the existing phone model. A next (e.g. first) phone model of a next word of a particular phone model of the existing active list is added to the new active list if the ending score of that particular phone model is within a third predetermined value of the global best score.
MainClaim: A method of constructing a new active list of phone models from an existing active list of phone models during acoustic matching of a speech recognition system, comprising the steps of:

(A) comparing a speech frame against each of the phone models in the existing active list to obtain a phone best score for each of the phone models of the existing active list;

(B) adding a next phone model of a first phone model of the phone models of the existing active list to the new active list if the phone best score of the first phone model is within a first predetermined value of a phone ending score of the

first phone model.

7,689,248	Listening assistance function in phone terminals	Nokia Corporation	Valve; Paivi | Karkkainen; Leo | Backman; Juha | Sjoberg; Jari	455	H04M	20050927	0	100%	☐

Abstract: The specification and drawings present a new method, apparatus and software product for listening assistance to a user of a phone terminal with a headset or a hearing aid for selective listening of a local acoustic source in a noisy environment by said user utilizing a combination of said phone terminal and said headset. The method for the listening assistance comprises of placing the phone terminal near a desired local acoustic source, switching a mode of the phone terminal to a listening mode, providing to the headset or to the hearing aid a signal (e.g., a wireless signal) generated by the phone terminal in response to an acoustic signal from the local acoustic source, and providing to the user an output acoustic signal generated by the headset or by the hearing aid in response to that signal thus providing said listening assistance to the user.

MainClaim: A method, comprising a user placing a mobile phone terminal near a local acoustic source in an ambient noise situation presenting a hearing challenge to said user in hearing said local acoustic source; said user switching a mode of the mobile phone terminal from a phone mode to a listening assistance mode; said mobile phone terminal transmitting to a headset, hearing aid, or earpiece worn by said user a transmitted signal generated by the mobile phone terminal in said listening assistance mode in response to a microphone signal from a microphone of said mobile phone terminal indicative of a local acoustic signal from said local acoustic source; and providing to the user an output acoustic signal by the headset, the hearing aid, or the earphone in response to said transmitted signal thus providing listening assistance in said ambient noise situation to the user in hearing said local acoustic signal in said listening assistance mode, wherein said switching of the mode of the mobile phone terminal to the listening assistance mode comprises: providing a listening command signal to a mode switch block of said mobile phone terminal; and providing, in response to said listening command signal, a switching mode signal to an audio enhancement module of the mobile phone terminal or to a listening audio enhancement module of the mobile phone terminal and providing said listening command signal optionally: to a receiving and decoding module of the mobile phone terminal, to said microphone or to an analog-to-digital converter of the mobile phone terminal.

2010/0081487	MULTIPLE MICROPHONE SWITCHING AND CONFIGURATION	Apple Inc.	Chen; Shaohai | Li; Xingqun	455	H04M	20080930	2	94%	☐

Abstract: A mobile communications device contains at least two microphones. One microphone is designated by a selector to provide a voice dominant signal and another microphone is designated to provide a noise or echo dominant signal, for a call or a recording. The selector communicates the designations to a switch that routes the selected microphone signals to the inputs of a processor for voice signal enhancement. The selected voice dominant signal is then enhanced by suppressing ambient noise or canceling echo therein, based on the selected noise or echo dominant signal. The designation of microphones may change at any instant during the call or recording depending on various factors, e.g. based on the quality of the microphone signals. Other embodiments are also described.

MainClaim: An apparatus comprising:a communications device housing having integrated therein:an uplink channel processor to provide an uplink voice signal for a call by enhancing a voice dominant input signal using an echo or noise dominant input signal;a downlink channel processor to receive a downlink voice signal for the call;a plurality of microphones;a switch to couple (a) a microphone signal, that is selectable from each of the plurality of microphones, into a voice dominant input of the uplink channel processor, and (b) a further microphone signal, selectable from each of the plurality of microphones, into a noise and/or echo dominant input of the uplink channel processor; anda selector to dynamically control the switch during the call to change the coupling of the microphone signals.

7,629,547	Illuminating of an electrical device	Nokia Corporation	Heath; Jonathan | Millar; Caroline | Hutchison; Hutch | Pihlaja; Pekka Juhana	200	H01H	20060424	0	100%	☐

Abstract: Present invention enables to illuminate an artwork or alphanumerics of related key(s) of an electrical device from above with illumination module situated in the vicinity of the artwork or alphanumerics. Present invention also enables the use of opaque material in the keys or in the keypad.

MainClaim: An apparatus, comprising: at least one illumination module for illuminating artwork or alphanumerics of an electrical device; and at least one key comprising a top surface and a bottom surface, wherein the bottom surface of said at least one key is at least partially positioned on an upper surface of said at least one illumination module, wherein the bottom surface comprises a first portion and a second portion, and wherein the second portion is positioned on the upper surface of said at least one illumination module and the first portion is positioned at an angle with respect to the second portion; wherein said first portion of the bottom surface is configured to direct illumination from said bottom surface of said at least one key through air onto an outer surface of said electrical device adjacent to said at least one key.

2009/0173610	System and methods for electronic device keyboard illumination	Apple Inc.	Bronstein; Chad A. | Mahowald; Peter H.	200	H01H	20080505	1	93%	☐

Abstract: A keyboard may be generally illuminated while also providing for key-specific illumination of one or more particular keys. The keyboard may be generally illuminated using any configuration of any number of suitable illumination sources. The keyboard may selectively illuminate any key or keys together with or apart from the general illumination of other keys. The keyboard may also variably illuminate certain keys to aid the user in navigating the keyboard.

MainClaim: A keyboard comprising:a plurality of keys;at least a first source reflective surface; anda flexible circuitry layer positioned under the plurality of keys, wherein the flexible circuitry layer includes at least a first illumination

source, wherein the first illumination source primarily emits light in a first direction, and wherein the first source reflective surface is positioned at a first angle with respect to the first direction to reflect at least a portion of the emitted light in a second direction that is different than the first direction.

6,874,926	Illumination system for an electronic device	Nokia Corporation	Nousiainen; Jaakko	362	F21V	20011126	0	100%	☐

Abstract: A light conduit to be used in conjunction with a light source in a hand-held electronic device for illuminating the keys and display of the device. The light conduit has a planar light guiding section with a plurality of light escape elements located in the keys to allow portions of the received light to escape for illuminating the keys. An light escapement section, located near the display, is extended from or optically coupled to the light guiding section to allow a further portion of the received light to escape from the light escapement section for illuminating the display. The light source can be located near the light guide section or near the light escapement section. light guide section or near the light escapement section.

MainClaim: An illumination system for use in a device having a plurality of key buttons disposed in a plurality of key locations, said illumination system comprising:

a light source for providing light; and

a light conduit adapted to receive at least a portion of the provided light, the light conduit having:

a light guiding section for conveying the received light to areas near the key locations, wherein the light guiding section has two substantially flat boundaries and a plurality of side surfaces joining the two boundaries within the light guiding section for allowing the received light to propagate between the boundaries and side surfaces via reflection, and

a plurality of light escape elements disposed in the light guiding section and located in the areas near the key locations to allow portions of the received light to escape from the light guiding section for illuminating the key buttons, wherein said light escape elements have a plurality of side facets, at least some of which reflect other portions of the received light along with one or more of the side surfaces within the light guiding section for allowing said other portions of the received light to propagate between the boundaries of the light guiding section.

6,929,391	Light guide panel and method of use	Apple Computer, Inc.	Hotelling; Steven Porter	362	F21V	20030717	1	93%	☐

Abstract: A light guide panel is disclosed. The panel comprises a plate for dispersing light and at least one light-emitting diode (LED) coupled to the plate for providing the dispersed light. When the panel is coupled to a keyboard, the at least one LED is under a portion of the keyboard such that when the at least one LED is illuminated, the light from the LED does not distract a user. Accordingly, by strategically placing LEDs within the panel and providing the LEDs under appropriate portions of the keyboard, the device utilizing the keyboard can be smaller than when a conventional light guide panel is utilized. In addition, a further improvement in illumination is provided when a mechanism is provided which reflects light escaping from the edges of the panel back into the panel.

MainClaim: A light guide panel comprising:

a plate for dispersing light, wherein the plate includes a plurality of optical fibers for dispersing light, the plurality of optical fibers being completly within the plate; and

at least one light-emitting diode (LED) coupled to the plate for providing the dispersed light, wherein when the plate is coupled to a keyboard, the at least one LED is located under a portion of the keyboard such that when the at least one LED is illuminated, the light from the at least one LED does not distract a user.

7,407,315	Method and apparatus for backlighting a device	Apple Inc.	Hotelling; Steven Porter	362	F21V	20050629	1	92%	☐

Abstract: A light guide panel is disclosed. The panel comprises a plate for dispersing light and at least one light-emitting diode (LED) coupled to the plate for providing the dispersed light. When the panel is coupled to a keyboard, the at least one LED is under a portion of the keyboard such that when the at least one LED is illuminated, the light from the LED does not distract a user. Accordingly, by strategically placing LEDs within the panel and providing the LEDs under appropriate portions of the keyboard, the device utilizing the keyboard can be smaller than when a conventional light guide panel is utilized. In addition, a further improvement in illumination is provided when a mechanism is provided which reflects light escaping from the edges of the panel back into the panel.

MainClaim: A light guide panel for backlighting a device, the light guide panel comprising: a plate including a plurality of optical fibers for dispersing light through the plate to illuminate the plate and provide a backlight for the device, the plurality of optical fibers being completely within the plate; and a light-emitting diode (LED) coupled to the plate for providing the light dispersed by the plurality of optical fibers, the light-emitting diode being located in a central portion of the plate such that the light-emitting diode (LED) does not touch an edge of the plate, wherein an opaque portion of the device covers the light-emitting diode (LED) in the central portion of the plate such that when the light-emitting diode (LED) is illuminated, the light from the light-emitting diode (LED) is more evenly distributed throughout the plate, the opaque portion of the device being a user input button of the device.

2008/0273350	METHOD AND APPARATUS FOR BACKLIGHTING A DEVICE	APPLE INC.	HOTELLING; Steven Porter	362	F21V	20080721	1	92%	☐

Abstract: A light guide panel is disclosed. The panel comprises a plate for dispersing light and at least one light-emitting diode (LED) coupled to the plate for providing the dispersed light. When the panel is coupled to a keyboard, the

at least one LED is under a portion of the keyboard such that when the at least one LED is illuminated, the light from the LED does not distract a user. Accordingly, by strategically placing LEDs within the panel and providing the LEDs under appropriate portions of the keyboard, the device utilizing the keyboard can be smaller than when a conventional light guide panel is utilized. In addition, a further improvement in illumination is provided when a mechanism is provided which reflects light escaping from the edges of the panel back into the panel.
MainClaim: A light guide panel comprising:a plate for dispersing light wherein the plate includes a plurality of optical fibers for dispersing light, the plurality of optical fibers being completely within the plate; andat least one light-emitting diode (LED) coupled to the plate for providing the dispersed light, wherein when the panel is properly positioned, the at least one LED is located such that when the at least one LED is illuminated, the light from the at least one LED does not distract a user.

6,775,258	Apparatus, and associated method, for routing packet data in an ad hoc, wireless communication system	Nokia Corporation	van Valkenburg; Sander | Palomar; Marc Solsona	370	H04Q	20000317	0	100%	☐

Abstract: Apparatus, and an associated method, by which to route packets of data between a data source node and a data destination node in an ad hoc, wireless network, such as a Bluetooth scatternet. Data routing tables are provided to each node, and header information extracted from a packet header is used by such tables. Routing of a packet of data is effectuated in a hop-by-hop manner to effectuate the communication of the packet from the data source node to the data destination node.
MainClaim: In a multinode, ad hoc, wireless communication system having at least a data source node and a data destination node, and the communication system selectably and dynamically formed of a first piconet at which the data source node is positioned and a second piconet at which a data destination node is positioned, each of the first and at least second piconets having a master node and at least one slave node, the at least one slave node capable of communication of the packets of data only to an associated master node, the data source node forming a selected one of a slave node and a master node of the first piconet and the data destination node a selected one of a slave node and a master node of the second piconet, an improvement of apparatus for facilitating routing of packets of data between the data source node and the data destination node by way of a communication path, the communication path having at least one node, inclusive of the data destination node, said apparatus comprising:

at least one first routing table embodied at each of the at least one node of the communication path and having an incoming data ledger and an outgoing data ledger, said first routing table for facilitating mapping an incoming data packet to an outgoing data packet, said first routing table populated with values extracted from header information of the packets, the packets routed in a first manner using values of the at least one first routing table when the node at which said at least one first routing table is embodied forms a slave node and the packets routed in a second manner using values of the at least one first routing table when the node at which said at least one first routing table is embodied forms a master node.

2009/0304001	SOURCE ADDRESS BASED ROUTING PROCESS	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	7	92%	☐

Abstract: A method is described that entails assigning a source network address to an outbound packet, associating the outbound packet with a network service and identifying a first network interface associated with the network service. The method further entails inquiring into and confirming that the first network interface is associated with the source network address. The method further entails constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function, the routing function providing the outbound packet's next hop address. The method further entails transmitting the outbound packet to a node identified by the next hop address from the network interface.
MainClaim: A method, comprising:a) assigning a source network address to an outbound packet, associating said outbound packet with a network service and identifying a first network interface associated with said network service;b) inquiring into and confirming that said first network interface is associated with said source network address;c) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;d) submitting said search key to a routing function, said routing function providing said outbound packet's next hop address; and,e) transmitting said outbound packet to a node identified by said next hop address from said network interface.

2009/0304000	OUTBOUND TRANSMISSION OF PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	8	92%	☐

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.
MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting

said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

2009/0304005	ROUTING TABLE LOOKUP ALGORITHM EMPLOYING SEARCH KEY HAVING DESTINATION ADDRESS AND INTERFACE COMPONENT	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	5	92%	☐

Abstract: A routing table lookup algorithm is described that, for a first outbound packet, performs a first route lookup into the routing table with a first search key that includes the first packet's destination address and a first network interface identifier, and, for a second outbound packet, performs a second route lookup into the routing table with a second search key that includes the second outbound packet's destination address but does not include any network interface identifier.
MainClaim: A method, comprising:for a first outbound packet, performing a first route lookup into a routing table with a first search key that includes said first packet's destination address and a first network interface identifier; and,for a second outbound packet, performing a second route lookup into said routing table with a second search key that includes said second outbound packet's destination address but does not include any network interface identifier.

6,930,988	Method and system for fast IP connectivity in a mobile network	Nokia Corporation	Koodli; Rajeev | Perkins; Charles E.	370	H04Q	20021028	0	100%	☐

Abstract: An apparatus, system, and method are directed to managing connectivity in a network by expediting the ability of a mobile node to send Internet Protocol (IP) packets subsequent to a handover. The mobile node is configured to determine an unconfirmed address for use on an access router. Upon establishing a link-layer connection, and before establishing a network-layer connection with the access router, the mobile node employs the unconfirmed address to send an IP packet to the access router. Employing the unconfirmed address prior to network-layer connectivity enables the reduction of handover latencies. If the access router determines that the unconfirmed address conflicts with an existing address, the access router provides a message to the mobile node indicating the conflict in addresses. In response to the message, the mobile node performs actions to resolve the address conflict.
MainClaim: An apparatus for managing connectivity in a network, comprising:

(a) a network interface that employs a packet-based protocol to send and receive packets;

(b) a mobile node configured to perform actions, including:

determining an unconfirmed address; and

if the mobile node is handed over to a router, and a network-layer connection is unestablished with the router, employing the network interface to provide a packet including the unconfirmed address to the router, wherein the mobile node singularly confirms the use of the unconfirmed address.

7,447,927	Method and apparatus for waking up a sleeping system	Apple Inc.	Siegmund; Dieter W.	713	G06F	20050823	6	94%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Note that, since the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Note that using the upper-layer protocol enables the remote system to communicate with the relay agent even though they are on different LANs. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up. Recall that the remote system cannot use the lower-layer protocol to send a wake-up packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs. The remote system overcomes this limitation by first sending a wake-up packet to the relay agent using the upper-layer protocol, which causes the relay agent to send another wake-up packet to the sleeping target system using the lower-layer protocol.
MainClaim: A method for waking up a sleeping target system located on a target LAN (Local Area Network) from a remote system on a remote LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising: creating a first wake-up packet, wherein creating the first wake-un packet involves determining an IP (Internet Protocol) address of a relay agent located on the target LAN based on an IP address of the sleeping target system and a subnet mask; and sending the first wake-up packet to the relay agent using a second protocol; wherein sending the first wake-up packet to the relay agent causes the relay agent to use the first protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up; and wherein the first wake-up packet is a network-layer packet which includes a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains: a client hardware address field which is set to a link-layer address of the sleeping target system; a client IP address field which is set to a network-layer address associated with the link-layer address of the sleeping target system; and a relay agent network-layer address

field which is set to a network-layer address associated with an interface of the relay agent which is coupled with the target LAN, wherein the relay agent located on the target LAN is a DHCP relay agent.

2009/0030970	METHOD AND APPARATUS FOR WAKING UP A SLEEPING SYSTEM	APPLE INC.	Siegmund; Dieter W.	709	G06F	20080930	7	93%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Because the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up.
MainClaim: A computer-readable storage medium storing instructions that when executed by a relay agent located on a target LAN (Local Area Network) cause the relay agent to perform a method which allows a remote system located on a remote LAN to wake up a sleeping target system located on the target LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising:receiving a first wake-up packet from the remote system using a second protocol;creating a second wake-up packet using the first wake-up packet; andsending the second wake-up packet to the sleeping target system using the first protocol, wherein sending the second wake-up packet causes the sleeping target system to wake up.

7,436,783	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20050404	6	93%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) requests, comprising: sending an ARP probe for a link-local address; when a response is received to the ARP probe, sending an ARP request to the responding device asking for an Ethernet address associated with a reserved IP address, wherein the reserved IP address is an Ipv4 link-local broadcast address 169.254.255.255 or an IPv4 link-local address 169.254.0.0, which should not be assigned to any device; and if a response is received from the device to the ARP request, placing the address of the device on a black list associated with a range of link-local IP addresses: and ignoring subsequent ARP responses from source addresses in the black list for the link-local address range, so that subsequent ARP responses pertaining to that address range from the device will be ignored.

6,741,555	Enhancement of explicit congestion notification (ECN) for wireless network applications	Nokia Internet Communictions Inc.	Li; Xiang | Wu; Jing | Cheng; Shiduan | Ma; Jian	370	H04L	20000614	0	100%	☐

Abstract: An Explicit Congestion Notification (ECN) method is disclosed for wireless applications to avoid network congestion in a TCP/IP packet-switched network. Such method comprises transmitting, at a source node, data packets to a destination node, via at least an intermediate node; determining, at the intermediate node, if an incipient congestion is encountered, setting a Congestion Experienced (CE) flag in each data packet to notify congestion; sending, at the destination node, an ECN-Echo acknowledgment packet back to the source node to inform congestion; reducing, at the source node, a congestion window and a transmission rate to avoid congestion; if the packet loss is due to congestion, re-transmitting, at the source node, only a lost packet to the destination node; alternatively, if the packet loss is due to transmission error, re-transmitting, the lost packet to the destination node, while increasing a round-trip timeout but maintaining the same congestion window.
MainClaim: A method of avoiding congestion in a network, comprising:

transmitting, at a source node, data packets to a destination node, via at least an intermediate node, each data packet including a Transmission Control Protocol (TCP) header;

determining, at the intermediate node, if an incipient congestion is encountered, and if the incipient congestion is encountered, setting a Congestion Experienced (CE) flag in each data packet which indicates the incipient congestion to notify the incipient congestion to the destination node;

receiving, at the destination node, a CE data packet, setting an Explicit Congestion Notification-Echo (ECN-Echo) flag in the TCP header of an acknowledgment (ACK) packet subsequent to the CE data packet received, and sending an ECN-Echo ACK packet back to the source node to inform that the incipient congestion was encountered in the network on the path from the source node to the destination node;

upon receipt of the ECN-Echo ACK packet, reducing, at the source node, a congestion window and a transmission rate to avoid the congestion, and determining if a packet loss is due to congestion or due to a transmission error, when the incipient congestion is still encountered in the network on the path from the source node to the destination node;

if the packet loss is due to congestion, re-transmitting, at the source node, only a lost packet to the destination node, via the intermediate node; and

if the packet loss is due to the transmission error, re-transmitting, at the source node, the lost packet to the destination node, via the intermediate node, while increasing a round-trip timeout (RTO) but maintaining the same congestion window.

7,013,346	Connectionless protocol	Apple Computer, Inc.	Tucker; Rusty	709	G06F	20001006	6	94%	☐

Abstract: Packets transmitted from a server into a computer network are assigned a sequence number, a retransmit time and a time to live. Each packet is retransmitted upon the expiration of the retransmit time if no acknowledgment has been received from a client to which the packet was sent. The packet is removed from a retransmit buffer if the time to live timer expires prior to any acknowledgment being received. Multiple acknowledgments may be combined into a coalesced acknowledgment.
MainClaim: A method for real time transmission of frame-based content between a network server and a network client comprising the steps of:

designating individual packets of said content as either a frame packet that contains information for reconstructing an entire frame of said content or a differential packet that contains changes to a frame;

assigning to each of said packets a sequence number and a timer for retransmission retention, wherein the duration of the timers for frame packets is longer than for differential packets;

transmitting each of said packets to said network client;

detecting an acknowledgment for one or more packets received at said network client;

retransmitting any of said packets for which no acknowledgment is detected if their respective timers have not expired; and

terminating the retention of each packet whose timer has expired, wherein differential packets are removed more frequently than frame packets in order to ensure that critical information is not lost when an acknowledgment is not detected.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	94%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	94%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,068,606	Overload control method for a	Nokia Corporation	Ma; Jian | Zhang;	370	H04L	20010917	0	100%	☐

	packet-switched network		Peng						

Abstract: The invention relates to a method for controlling overload in a packet-switched network, especially in a network where the Transmission Control Protocol (TCP) is used as the transport layer protocol. In order to inform the traffic source at a very early stage that the network is getting overloaded or congested, the transmission of acknowledgments traveling towards the source is only allowed if enough tokens are available. A token-based mechanism calculates the number of tokens on the basis of resource conditions such as a spare forward buffer capacity in a network node. Thereby, a threshold for a buffer occupancy or a rate for delaying the acknowledgments do not have to be determined. The acknowledgments are constrained closely related to the current network resource and not to the characterization of the data traffic. As a result, the overload control is significantly robust.
MainClaim: A method for controlling overload in a packet-switched network comprising traffic sources (A), traffic destinations (B) and network nodes (ANI, AN2), comprising the steps of: a) transmitting data units from a traffic source to a traffic destination; b) transmitting an acknowledgment from said traffic destination to said traffic source, if a data unit has been received correctly at said traffic destination; c) calculating a token number on the basis of a resource condition in at least one network node; and d) allowing a transmission of said acknowledgment to said traffic source only if said calculated token number exceeds a token limit, wherein the token number is calculated based on a spare capacity of a forward buffer in at least one network node, the forward buffer storing the data units which have been transmitted from the traffic source.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

6,757,248	Performance enhancement of transmission control protocol (TCP) for wireless network applications	Nokia Internet Communications Inc.	Li; Xiang | Wu; Jing | Cheng; Shiduan | Ma; Jian	370	G01R	20000614	0	100%	☐

Abstract: A new Fast Recovery Plus (FR+) mechanism, and associated method, for wireless and/or mobile network applications to control data flow and avoid network congestion in a TCP/IP packet-switched network.
MainClaim: A method of flow control and congestion avoidance congestion in a network, comprising:

transmitting, at a source node, data packets to a destination node, via at least an intermediate node;

receiving, at the destination node, data packets transmitted from the source node, via the intermediate node, and generating a duplicate ACK back to the source node to inform the source node that a data packet was received out-of-order in the network and serves as an indication that a data packet has been lost;

upon receipt of a designated number of duplicate ACKs, at the source node, determining that a data packet has been lost;

initializing a counter, at the source node, and recording a congestion window CWND, a slow start threshold Ssthresh, and a maximal sequence number SN that has been sent into the network;

upon receipt of a next duplicate ACK, at the source node, recording its acknowledged sequence number ACK_SN;

determining, at the source node, if the acknowledged sequence number ACK_SN is no more than a recorded sequence number SN;

if the acknowledged sequence number ACK_SN is more than the recorded sequence number SN, incrementing the counter, at the source node, and re-transmitting a lost packet;

if the acknowledged sequence number ACK_SN is no more than the recorded sequence number SN, determining if the packet loss is due to a transmission error; and

if the packet loss is due to the transmission error, setting, at the source node, the slow start threshold Ssthresh to Max (CWND, (Ssthresh+CWND)/2), wherein said CWND and Ssthresh exhibit values previously recorded.

7,013,346	Connectionless protocol	Apple Computer, Inc.	Tucker; Rusty	709	G06F	20001006	6	94%	☐

Abstract: Packets transmitted from a server into a computer network are assigned a sequence number, a retransmit time and a time to live. Each packet is retransmitted upon the expiration of the retransmit time if no acknowledgment has been received from a client to which the packet was sent. The packet is removed from a retransmit buffer if the time to live timer expires prior to any acknowledgment being received. Multiple acknowledgments may be combined into a coalesced acknowledgment.
MainClaim: A method for real time transmission of frame-based content between a network server and a network client comprising the steps of:

designating individual packets of said content as either a frame packet that contains information for reconstructing an entire frame of said content or a differential packet that contains changes to a frame;

assigning to each of said packets a sequence number and a timer for retransmission retention, wherein the duration of the timers for frame packets is longer than for differential packets;

transmitting each of said packets to said network client;

detecting an acknowledgment for one or more packets received at said network client;

retransmitting any of said packets for which no acknowledgment is detected if their respective timers have not expired; and

terminating the retention of each packet whose timer has expired, wherein differential packets are removed more frequently than frame packets in order to ensure that critical information is not lost when an acknowledgment is not detected.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	94%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	94%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a

threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

6,683,865	System for routing and switching in computer networks	Nokia Wireless Routers, Inc.	Garcia-Luna-Aceves; J. Joaquin | Beyer; David A. | Frivold; Thane J.	370	H04L	19991015	0	100%	☐

Abstract: A protocol for a computer network in which routing operation codes (ROCs) in headers of packets transmitted within the network specify to a receiving router which of a number of routing or switching methods to apply to forward associated packets. The packets may be forwarded in any of the following modes: (a) a broadcast mode, (b) a hop-by-hop mode based on receiving node address information, (c) a label swapping mode, (d) a source-switching mode, (e) a flow switching mode, or (f) a hop-by-hop mode based on sending mode address information. In the label swapping mode, packets are accepted by the receiving router if the packets include a media access control address of the receiving router, and packets are forwarded from the receiving router according to a switching table indexed by a media access control address of a transmitting router. In the source switching mode, the headers include source routes specified in terms of local link identifiers used by routers in the network. Also, receiving routers are identified using local link identifiers associated with communication links between a transmitting router and an intended receiving router.
MainClaim: A method comprising:

receiving a packet at a first router of a data network;

forwarding the packet to a second router of the data network according to one of a plurality of forwarding modes specified by a routing operation code in the header of the packet, wherein the plurality of modes comprise (1) modes wherein the packet is accepted based on a receiving node address included in the header and (2) source switching, flow switching, and incremental modes wherein the packet is accepted based at least in part on a local link identifier included in the header.

2009/0304001	SOURCE ADDRESS BASED ROUTING PROCESS	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	7	94%	☐

Abstract: A method is described that entails assigning a source network address to an outbound packet, associating the outbound packet with a network service and identifying a first network interface associated with the network service. The method further entails inquiring into and confirming that the first network interface is associated with the source network address. The method further entails constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function, the routing function providing the outbound packet's next hop address. The method further entails transmitting the outbound packet to a node identified by the next hop address from the network interface.
MainClaim: A method, comprising:a) assigning a source network address to an outbound packet, associating said outbound packet with a network service and identifying a first network interface associated with said network service;b) inquiring into and confirming that said first network interface is associated with said source network address;c) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;d) submitting said search key to a routing function, said routing function providing said outbound packet's next hop address; and,e) transmitting said outbound packet to a node identified by said next hop address from said network interface.

2009/0304000	OUTBOUND TRANSMISSION OF PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	8	94%	☐

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.
MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

2009/0304005	ROUTING TABLE LOOKUP ALGORITHM EMPLOYING SEARCH KEY HAVING	Apple Inc.	Masputra; Cahya | Siegmund; Dieter		H04L	20080930	5	94%	☐

	DESTINATION ADDRESS AND INTERFACE COMPONENT		| Lubet; Vincent						

Abstract: A routing table lookup algorithm is described that, for a first outbound packet, performs a first route lookup into the routing table with a first search key that includes the first packet's destination address and a first network interface identifier, and, for a second outbound packet, performs a second route lookup into the routing table with a second search key that includes the second outbound packet's destination address but does not include any network interface identifier.
MainClaim: A method, comprising:for a first outbound packet, performing a first route lookup into a routing table with a first search key that includes said first packet's destination address and a first network interface identifier; and,for a second outbound packet, performing a second route lookup into said routing table with a second search key that includes said second outbound packet's destination address but does not include any network interface identifier.

6,219,713	Method and apparatus for adjustment of TCP sliding window with information about network conditions	Nokia Telecommunications, Oy	Ruutu; Jussi | Kilkki; Kalevi	709	G06F	19980707	0	100%	☐

Abstract: A method and apparatus for adjustment of TCP sliding window with information about network conditions is disclosed. The present invention obtains information from the network below TCP about the condition of the network and traffic and uses this information to control the transmission of the TCP source without any modifications to the existing TCP sources. The invention includes the steps of receiving feedback information in an acknowledgment packet, receiving a packet having an advertised window field set to an original advertised window size for a sliding window, and modifying the advertised window field to chose the size of the sliding window in response to feedback information received in the acknowledgment packet. The original advertised window size indicates the original size of a sliding window for determining a number of bytes that can be sent before an acknowledgment packet is received. The feedback information further includes a window advertisement. The size of the sliding window includes the minimum of the window advertisement and a congestion window. The window advertisement specifies an increase to the size of the sliding window. The increase includes an additional number of octets of data a receiver is prepared to accept. The method further includes the steps of calculating a modified advertised window size using the window advertisement, comparing the modified advertised window size to an original advertised window size and transmitting an acknowledgment including the least of the modified advertised window size and the original advertised window size.
MainClaim: A TCP source in a network comprising a sliding window, the sliding window having a size for determining a number of bytes that can be sent before an acknowledgment packet is received by the TCP source, wherein the size of the sliding window is chosen in response to information received from a TCP receiver in an acknowledgment packet indicating a load condition and traffic congestion for the network.

7,013,346	Connectionless protocol	Apple Computer, Inc.	Tucker; Rusty	709	G06F	20001006	6	92%	☐

Abstract: Packets transmitted from a server into a computer network are assigned a sequence number, a retransmit time and a time to live. Each packet is retransmitted upon the expiration of the retransmit time if no acknowledgment has been received from a client to which the packet was sent. The packet is removed from a retransmit buffer if the time to live timer expires prior to any acknowledgment being received. Multiple acknowledgments may be combined into a coalesced acknowledgment.
MainClaim: A method for real time transmission of frame-based content between a network server and a network client comprising the steps of:

designating individual packets of said content as either a frame packet that contains information for reconstructing an entire frame of said content or a differential packet that contains changes to a frame;

assigning to each of said packets a sequence number and a timer for retransmission retention, wherein the duration of the timers for frame packets is longer than for differential packets;

transmitting each of said packets to said network client;

detecting an acknowledgment for one or more packets received at said network client;

retransmitting any of said packets for which no acknowledgment is detected if their respective timers have not expired; and

terminating the retention of each packet whose timer has expired, wherein differential packets are removed more frequently than frame packets in order to ensure that critical information is not lost when an acknowledgment is not detected.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network,

comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.

MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,085,808	Method for distinguishing clients in a communication system, a communication system; and a communication device	Nokia Corporation	Haverinen; Henry | Malinen; Jari T.	709	G06F	20010607	0	100%	☐

Abstract: The invention relates to a method for distinguishing clients in a communication system comprising at least one wireless access network and at least one wired access network. The wireless access network comprise means for connecting wireless clients in communication to the wireless access network. Wired access network comprise means for connecting wired clients in communication to the wired access network. Communication system comprise means for communicating between the access network and the wired access network. In the method a resolution request message is transmitted to the communication system indicating a client to be examined, the message is received in at least one other node. A decision whether a resolution reply message is to be transmitted to the communication system is performed on the basis of a resolution reply message.

MainClaim: A method for distinguishing clients in a communication system comprising at least one wireless access network and at least one wired access network, said at least one wireless access network comprising means for connecting at least one wireless client in communication to said at least one wireless access network, said at least one wired access network comprising means for connecting at least one wired client in communication to said at least one wired access network, and said communication system comprising means for communicating between said at least one wireless access network and said at least one wired access network, wherein the method comprises at least the following steps: a transmission step for transmitting from a requesting node to the communication system a resolution request message indicating a client to be examined, a receiving step for receiving said resolution request message in at least one other node of the communication system, and a decision step for deducing on the basis of a resolution reply message whether said client to be examined is connected to said wireless access network or to said wired access network, wherein the decision on whether said client to be examined is connected to said wireless access network or to said wired access network is performed on the basis of whether said resolution reply message is received in the requesting node.

7,447,927	Method and apparatus for waking up a sleeping system	Apple Inc.	Siegmund; Dieter W.	713	G06F	20050823	6	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Note that, since the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Note that using the upper-layer protocol enables the remote system to communicate with the relay agent even though they are on different LANs. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up. Recall that the remote system cannot use the lower-layer protocol to send a wake-up packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs. The remote system overcomes this limitation by first sending a wake-up packet to the relay agent using the upper-layer protocol, which causes the relay agent to send another wake-up packet to the sleeping target system using the lower-layer protocol.

MainClaim: A method for waking up a sleeping target system located on a target LAN (Local Area Network) from a

remote system on a remote LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising: creating a first wake-up packet, wherein creating the first wake-un packet involves determining an IP (Internet Protocol) address of a relay agent located on the target LAN based on an IP address of the sleeping target system and a subnet mask; and sending the first wake-up packet to the relay agent using a second protocol; wherein sending the first wake-up packet to the relay agent causes the relay agent to use the first protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up; and wherein the first wake-up packet is a network-layer packet which includes a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains: a client hardware address field which is set to a link-layer address of the sleeping target system; a client IP address field which is set to a network-layer address associated with the link-layer address of the sleeping target system; and a relay agent network-layer address field which is set to a network-layer address associated with an interface of the relay agent which is coupled with the target LAN, wherein the relay agent located on the target LAN is a DHCP relay agent.

2009/0030970	METHOD AND APPARATUS FOR WAKING UP A SLEEPING SYSTEM	APPLE INC.	Siegmund; Dieter W.	709	G06F	20080930	7	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Because the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up.
MainClaim: A computer-readable storage medium storing instructions that when executed by a relay agent located on a target LAN (Local Area Network) cause the relay agent to perform a method which allows a remote system located on a remote LAN to wake up a sleeping target system located on the target LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising:receiving a first wake-up packet from the remote system using a second protocol;creating a second wake-up packet using the first wake-up packet; andsending the second wake-up packet to the sleeping target system using the first protocol, wherein sending the second wake-up packet causes the sleeping target system to wake up.

7,310,335	Multicast routing in ad-hoc networks	Nokia Networks	Garcia-Luna-Aceves; Jose J. | Spohn; Marcelo	370	H04L	20001031	0	100%	☐

Abstract: Multicast routing in ad-hoc networks by exchange of multicast group update information and routing tree information among neighboring routers is disclosed. A router propagates multicast group update information based on the update information and the routing tree information. A router also determines whether to forward multicast data packets based on control information in the multicast data packets and the routing tree information.
MainClaim: A method for communicating multicast group membership information in a network between a plurality of routers in a multicast group, the method comprising: reporting routing tree information from each of the plurality of routers reports to other routers of said plurality of routers, wherein the routing tree information comprises a source tree for a unicast routing protocol; receiving update information at a second router in the network from a first router, said update information comprising update information on a multicast group and a network address of said first router; using said update information to indicate that said first router is becoming a member of said multicast group; determining, based at least in part on said update information and the routing tree information reported by said first router, whether said second router is to transmit said update information so that all members of said multicast group remain connected, by determining if said source tree reported by said first router has said second router as a root of a subtree from which said first router is excluded, and if at least one neighbor router of said second router in said subtree is not a member of said multicast group; and in response to a positive determination, transmitting said update information from said second router to said at least one neighbor router of said second router.

2009/0304001	SOURCE ADDRESS BASED ROUTING PROCESS	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	7	92%	☐

Abstract: A method is described that entails assigning a source network address to an outbound packet, associating the outbound packet with a network service and identifying a first network interface associated with the network service. The method further entails inquiring into and confirming that the first network interface is associated with the source network address. The method further entails constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function, the routing function providing the outbound packet's next hop address. The method further entails transmitting the outbound packet to a node identified by the next hop address from the network interface.
MainClaim: A method, comprising:a) assigning a source network address to an outbound packet, associating said outbound packet with a network service and identifying a first network interface associated with said network service;b) inquiring into and confirming that said first network interface is associated with said source network address;c) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;d) submitting said search key to a routing function, said routing function providing said outbound packet's next hop address; and,e) transmitting said outbound packet to a node identified by said next hop address from said network interface.

2009/0304000	OUTBOUND TRANSMISSION OF PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED	Apple Inc.	Masputra; Cahya | Siegmund; Dieter		H04L	20080930	8	92%	☐

	FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE		| Lubet; Vincent						

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.
MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

2009/0304006	ROUTING TABLE BUILD ALGORITHM FOR A ROUTING TABLE THAT USES A SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	2	92%	☐

Abstract: A method is described that involves, in view of a first default entry for a first subnet that is reachable through a first network service, where the first default entry has a numeric destination value, and in view of a second default entry for a second subnet that is reachable through a second network service, wherein the second default entry has the numeric destination value, sorting the first and second default entries by deciding that the first network service is ranked higher than the second network service. The method further involves configuring the first default entry within a routing table to have the numeric destination and not an interface component within the first default entry's search term, and, configuring the second default entry within the routing table to have the numeric destination and the second network service's interface component within the second default entry's search term.
MainClaim: A method, comprising:in view of a first default entry for a first subnet that is reachable through a first network service, said first default entry having a numeric destination value, and in view of a second default entry for a second subnet that is reachable through a second network service, said second default entry having said numeric destination value, sorting said first and second default entries by:deciding that said first network service is ranked higher than said second network service; and,configuring said first default entry within a routing table to have said numeric destination and not an interface component within said first default entry's search term; and,configuring said second default entry within said routing table to have said numeric destination and said second network service's interface component within said second default entry's search term.

7,167,922	Method and apparatus for providing automatic ingress filtering	Nokia Corporation	Narayanan; Ram Gopal Lakshmi	709	G06F	20021018	0	100%	☐

Abstract: Disclosed is a method for routing data packets, as is a data packet router (10) that operates in accordance with the invention. The method includes establishing an ingress filter (20) in individual ones of a plurality of line cards (14) installed within a router and automatically maintaining a content of an ingress filter table (20A) of each ingress filter in each line card at least partially in accordance with data packets passing through individual ones of the line cards, where the content includes an identification of source addresses of hosts (16) coupled to the router. The method further compares a source address of an incoming packet to a line card to the content of the ingress filter table of that line card, and is thus enabled to detect the presence of an IP packet containing a spoofed IP host address. For a first occurrence of a packet having an IP source address that is not found in the ingress filter table, the packet is forwarded to a route processor (12) for analysis. The method further includes changing the content of the ingress filter table based on a result of the analysis to add the source address to the content of the ingress filter table, if the route processor has knowledge that the IP source address is associated with a valid host. At least some of the packets are Internet Protocol control packets, such as Routing Protocol Update packets, Dynamic Host Configuration Protocol packets, BootTP packets and Address Resolution Protocol packets. At least some of the hosts may be mobile hosts capable of connection and disconnection at different points in a subnet (22).
MainClaim: A method for routing data packets, comprising: establishing an ingress filter in individual ones of a plurality of line cards installed within a router; automatically maintaining a content of an ingress filter table of each ingress filter in each line card at least partially in accordance with data packets passing through individual ones of the line cards, where the content comprises an identification of source addresses of hosts coupled to the router; comparing a source address of an incoming packet to a line card to the content of the ingress filter table of that line card, and if the source address is not found, forwarding the incoming packet to a route processor for analysis; and, adding the source address to the content of the ingress filter table in response to analyzing that the source address of the incoming packet is associated with a valid host.

2009/0304005	ROUTING TABLE LOOKUP ALGORITHM EMPLOYING SEARCH KEY HAVING DESTINATION ADDRESS AND	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	5	95%	☐

	INTERFACE COMPONENT								

Abstract: A routing table lookup algorithm is described that, for a first outbound packet, performs a first route lookup into the routing table with a first search key that includes the first packet's destination address and a first network interface identifier, and, for a second outbound packet, performs a second route lookup into the routing table with a second search key that includes the second outbound packet's destination address but does not include any network interface identifier.
MainClaim: A method, comprising:for a first outbound packet, performing a first route lookup into a routing table with a first search key that includes said first packet's destination address and a first network interface identifier; and,for a second outbound packet, performing a second route lookup into said routing table with a second search key that includes said second outbound packet's destination address but does not include any network interface identifier.

2009/0304001	SOURCE ADDRESS BASED ROUTING PROCESS	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	7	95%	☐

Abstract: A method is described that entails assigning a source network address to an outbound packet, associating the outbound packet with a network service and identifying a first network interface associated with the network service. The method further entails inquiring into and confirming that the first network interface is associated with the source network address. The method further entails constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function, the routing function providing the outbound packet's next hop address. The method further entails transmitting the outbound packet to a node identified by the next hop address from the network interface.
MainClaim: A method, comprising:a) assigning a source network address to an outbound packet, associating said outbound packet with a network service and identifying a first network interface associated with said network service;b) inquiring into and confirming that said first network interface is associated with said source network address;c) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;d) submitting said search key to a routing function, said routing function providing said outbound packet's next hop address; and,e) transmitting said outbound packet to a node identified by said next hop address from said network interface.

2009/0304000	OUTBOUND TRANSMISSION OF PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	8	95%	☐

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.
MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

7,564,848	Method for the establishing of connections in a communication system	Nokia Corporation	Torronen; Juha | Turunen; Tuomo	370	H04L	20050613	0	100%	☐

Abstract: The invention relates to the multiplexing of transport layer connections in a communication system comprising a front-end node and a number of server nodes. A first packet from the server node is routed to the front-end node, the first packet comprising destination information associated with an external node. A termination point associated with the destination information is established in the front-end node. The application data from the first packet is provided to an application entity in the front-end node. The first packet is sent to the external node.
MainClaim: A method, comprising: receiving, in a first network node, a message indicative of an active state of a server node; creating, in said first network node, a first filter specifying at least an address of said server node; receiving, from said server node, a first packet in said first network node, said first packet comprising destination information associated with a second network node; selecting, in said first network node, said first packet based on said first filter; requesting that an application entity, in said first network node, open a listening termination point in said first network node based on a termination point information in said first packet; creating, in said first network node, a second filter specifying said destination information, said second filter triggering an identifying of said listening termination point using termination point information in a triggered packet; selecting said first packet based on said second filter; and providing said first packet to said listening termination point.

7,447,927	Method and apparatus for waking up a sleeping system	Apple Inc.	Siegmund; Dieter W.	713	G06F	20050823	6	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Note that, since the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote

system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Note that using the upper-layer protocol enables the remote system to communicate with the relay agent even though they are on different LANs. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up. Recall that the remote system cannot use the lower-layer protocol to send a wake-up packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs. The remote system overcomes this limitation by first sending a wake-up packet to the relay agent using the upper-layer protocol, which causes the relay agent to send another wake-up packet to the sleeping target system using the lower-layer protocol.
MainClaim: A method for waking up a sleeping target system located on a target LAN (Local Area Network) from a remote system on a remote LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising: creating a first wake-up packet, wherein creating the first wake-un packet involves determining an IP (Internet Protocol) address of a relay agent located on the target LAN based on an IP address of the sleeping target system and a subnet mask; and sending the first wake-up packet to the relay agent using a second protocol; wherein sending the first wake-up packet to the relay agent causes the relay agent to use the first protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up; and wherein the first wake-up packet is a network-layer packet which includes a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains: a client hardware address field which is set to a link-layer address of the sleeping target system; a client IP address field which is set to a network-layer address associated with the link-layer address of the sleeping target system; and a relay agent network-layer address field which is set to a network-layer address associated with an interface of the relay agent which is coupled with the target LAN, wherein the relay agent located on the target LAN is a DHCP relay agent.

2009/0030970	METHOD AND APPARATUS FOR WAKING UP A SLEEPING SYSTEM	APPLE INC.	Siegmund; Dieter W.	709	G06F	20080930	7	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Because the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up.
MainClaim: A computer-readable storage medium storing instructions that when executed by a relay agent located on a target LAN (Local Area Network) cause the relay agent to perform a method which allows a remote system located on a remote LAN to wake up a sleeping target system located on the target LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising:receiving a first wake-up packet from the remote system using a second protocol;creating a second wake-up packet using the first wake-up packet; andsending the second wake-up packet to the sleeping target system using the first protocol, wherein sending the second wake-up packet causes the sleeping target system to wake up.

7,246,173	Method and apparatus for classifying IP data	Nokia Corporation	Le; Franck | Zheng; Haihong	709	G06F	20010416	0	100%	☐

Abstract: A method and methodology are provided for classifying Internet Protocol (IP) data in a packet switch network. Data may be received at a first node and classified based on source routing information of said data. The source routing information may be provided within LSRR/SSRR of IPv4 data or may be provided within a routing header of Ipv6 data.
MainClaim: A method of classifying Internet Protocol (IP) data to be sent from a source apparatus to a destination apparatus in a packet switched network, said method comprising: receiving said data at a first node, the data comprising a header comprising a list of at least one intermediate node to be visited on a way to the destination apparatus; and classifying said data at said first node based on an entry in said header.

2009/0304001	SOURCE ADDRESS BASED ROUTING PROCESS	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	7	93%	☐

Abstract: A method is described that entails assigning a source network address to an outbound packet, associating the outbound packet with a network service and identifying a first network interface associated with the network service. The method further entails inquiring into and confirming that the first network interface is associated with the source network address. The method further entails constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function, the routing function providing the outbound packet's next hop address. The method further entails transmitting the outbound packet to a node identified by the next hop address from the network interface.
MainClaim: A method, comprising:a) assigning a source network address to an outbound packet, associating said outbound packet with a network service and identifying a first network interface associated with said network service;b) inquiring into and confirming that said first network interface is associated with said source network address;c) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;d) submitting said search key to a routing function, said routing function providing said outbound packet's next hop address; and,e) transmitting said outbound packet to a node identified by said next hop address from said network interface.

	OUTBOUND TRANSMISSION OF								

2009/0304000	PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	8	93%	☐

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.
MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

2009/0304005	ROUTING TABLE LOOKUP ALGORITHM EMPLOYING SEARCH KEY HAVING DESTINATION ADDRESS AND INTERFACE COMPONENT	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	5	93%	☐

Abstract: A routing table lookup algorithm is described that, for a first outbound packet, performs a first route lookup into the routing table with a first search key that includes the first packet's destination address and a first network interface identifier, and, for a second outbound packet, performs a second route lookup into the routing table with a second search key that includes the second outbound packet's destination address but does not include any network interface identifier.
MainClaim: A method, comprising:for a first outbound packet, performing a first route lookup into a routing table with a first search key that includes said first packet's destination address and a first network interface identifier; and,for a second outbound packet, performing a second route lookup into said routing table with a second search key that includes said second outbound packet's destination address but does not include any network interface identifier.

7,613,193	Apparatus, method and computer program product to reduce TCP flooding attacks while conserving wireless network bandwidth	Nokia Corporation	Swami; Yogesh P. | Le; Franck	370	H04L	20060203	0	100%	☐

Abstract: A method for operating a firewall includes: in response to the firewall receiving a TCP SYN request packet that is sent towards a first node from a second node, the TCP SYN request packet comprising a sequence value ("seq"), sending to the second node a SYN|ACK packet, the SYN|ACK packet comprising a seq and an ack_sequence value ("ack_seq"), where ack_seq of the SYN|ACK packet is not equal to the TCP SYN request packet's seq+1; and in response to the firewall receiving a TCP RST packet from the second node, verifying that the seq in the TCP RST packet matches the ack_seq of the SYN|ACK packet and, if it does, designating the connection with the second node as an authorized connection.
MainClaim: A method comprising: in response to a firewall receiving a transport control protocol synchronization (TCP SYN) request packet that is sent towards a first node from a second node, said TCP SYN request packet comprising a sequence value ("seq"), sending to the second node an acknowledgement and synchronization (SYN|ACK) packet, said SYN|ACK packet comprising a seq and an ack_sequence value ("ack_seq"), where ack_seq of the SYN|ACK packet is not equal to the TCP SYN request packet's seq+1, wherein the ack_seq of the SYN|ACK packet is determined by a function that utilizes a secret value known to the firewall, IP address information, and a HASH function, wherein the secret value is not known to the second node; in response to receiving a transport control protocol reset (TCP RST) packet from the second node, verifying that the seq in the TCP RST packet matches the ack_seq of the SYN|ACK packet and, if it does, designating the connection with the second node as an authorized connection; sending an additional transport control protocol (TCP) packet to the second node, where the additional TCP packet does not have a SYN or ACK flag but does comprise a sequence value ("seq") equal to the seq of the TCP SYN request packet; after designating the connection with the second node as an authorized connection, using the seq of an additional received TCP RST packet to construct a synchronization (SYN) packet similar to the original TCP SYN request packet; and sending the constructed SYN packet to the first node to further enable a secure connection.

2009/0030970	METHOD AND APPARATUS FOR WAKING UP A SLEEPING SYSTEM	APPLE INC.	Siegmund; Dieter W.	709	G06F	20080930	7	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Because the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet

to the sleeping target system, which causes the sleeping target system to wake up.
MainClaim: A computer-readable storage medium storing instructions that when executed by a relay agent located on a target LAN (Local Area Network) cause the relay agent to perform a method which allows a remote system located on a remote LAN to wake up a sleeping target system located on the target LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising:receiving a first wake-up packet from the remote system using a second protocol;creating a second wake-up packet using the first wake-up packet; andsending the second wake-up packet to the sleeping target system using the first protocol, wherein sending the second wake-up packet causes the sleeping target system to wake up.

6,744,730	Throughput enhancement after interruption	Nokia Corporation	Le; Khiem | Swami; Yogesh	370	G01R	20011130	0	100%	☐

Abstract: An accelerated slow-start enables fast recovery from a packet delay or loss condition or even from a deliberate suspension of service in an Internet connection in which a wireless link exists between a sending mobile host (30) and a receiving network host (40).
MainClaim: Method, for increasing traffic from a sender (30) to a receiver (40) in a communications system after a period of packet delay or loss existing in a connection between said sender and said receiver by starting a congestion window (cwnd) and increasing the congestion window each time an acknowledgement arrives, characterized by

said sender accelerating said starting after a period of a detrimental radio condition existing on a radio link (32) of said connection concurrent with said period of packet delay or loss existing in said connection.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	94%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	94%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,369,498	Congestion control method for a packet-switched network	Nokia Corporation	Ma; Jian | Peng; Fei | Wu; Jing	370	G01R	19991213	0	100%	☐

Abstract: The present invention relates to a method and network for controlling congestion in a packet-switched network, comprising traffic sources, traffic destinations and network nodes, wherein a packet queue length in a network node is determined and a congestion notification is transmitted back towards the source address of an incoming data packet received at the network node, if the detected packet queue length exceeds a predetermined threshold. Then, congestion control is performed at a predetermined intermediate network node in response to the receipt of the congestion notification. Thereby, burts of source traffic can be constrained and unnecessary packet losses can be avoided already at an intermediate access node and within the network. The congestion notification message generated due to an incipient congestion is immediately routed back according to its source address. As a result, control delay time is shortened, such that buffer size requirements and number of congestion notification messages are reduced.
MainClaim: A method for controlling congestion in a packet-switched network, comprising traffic sources, traffic destinations and network nodes, said method comprising: determining a packet queue length in a network node; transmitting a congestion notification back towards the source address of an incoming data packet received at said

network node, if the detected packet queue length exceeds a predetermined threshold; and performing congestion control at a predetermined intermediate network node in response to receipt of said congestion notification; wherein said congestion notification is indicated by setting a predetermined bit in a header of said incoming data packet, and another predetermined bit of the header of said incoming data packet is used to indicate that the queue length has dropped below said predetermined threshold, wherein said congestion control is performed by controlling the rate of acknowledgements routed through said intermediate network node, and wherein a new acknowledgement rate is calculated at said intermediate network node based on a respective one of the following conditional relationships: $P_{new}=P_{old}*R1(R1<1)$, if said congestion indication has been received, or $P_{new}=P_{old}+R2*P_{max}(R2<1)$, if a congestion relieve indication has been received, wherein $P_{min}<P_{new}<P_{max}$, and wherein P_{old} denotes the acknowledgement rate before the change, P_{new} denotes the acknowledgement rate after the change, P_{min} denotes a minimum acknowledgement rate not larger than a round-trip time, P_{max} denotes a maximum rate equal to an access link speed, and R1 and R2 denote predefined parameters.

7,013,346	Connectionless protocol	Apple Computer, Inc.	Tucker; Rusty	709	G06F	20001006	6	92%	☐

Abstract: Packets transmitted from a server into a computer network are assigned a sequence number, a retransmit time and a time to live. Each packet is retransmitted upon the expiration of the retransmit time if no acknowledgment has been received from a client to which the packet was sent. The packet is removed from a retransmit buffer if the time to live timer expires prior to any acknowledgment being received. Multiple acknowledgments may be combined into a coalesced acknowledgment.
MainClaim: A method for real time transmission of frame-based content between a network server and a network client comprising the steps of:

designating individual packets of said content as either a frame packet that contains information for reconstructing an entire frame of said content or a differential packet that contains changes to a frame;

assigning to each of said packets a sequence number and a timer for retransmission retention, wherein the duration of the timers for frame packets is longer than for differential packets;

transmitting each of said packets to said network client;

detecting an acknowledgment for one or more packets received at said network client;

retransmitting any of said packets for which no acknowledgment is detected if their respective timers have not expired; and

terminating the retention of each packet whose timer has expired, wherein differential packets are removed more frequently than frame packets in order to ensure that critical information is not lost when an acknowledgment is not detected.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of

a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

6,744,774	Dynamic routing over secure networks	Nokia, Inc.	Sharma; Atul	370	H04L	20020627	0	100%	☐

Abstract: Systems and methods are provided for routing packets on a network based on interface information of a routing gateway or a neighboring gateway. One embodiment includes updating a routing table using interface information shared by a neighboring router. Another embodiment includes making routing decisions based on interface information from a neighboring router. A further embodiment includes making routing decisions based on priorities determined from interface information. Another embodiment includes the steps of updating a routing table on a first gateway, which includes the steps of receiving data disclosing interface information on a neighboring second gateway, and updating a routing table based on the interface information. The interface information for the neighboring second gateway includes identification of communication interfaces on the second gateway, an interface type for each of the interfaces, and a physical type interface on which each virtual type interface is overlaid.
MainClaim: A method of updating a routing table on a first gateway, the method comprising the steps of:

receiving data disclosing interface information on a neighboring second gateway, the interface information comprising:

an interface_id for each one of communication interfaces located on the second gateway, the interface_id comprising an identification of the corresponding communication interface; and

identification of a neighbor connected to each one of the interfaces; and updating the routing table to include at least some of the interface information.

2009/0304001	SOURCE ADDRESS BASED ROUTING PROCESS	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	7	95%	☐

Abstract: A method is described that entails assigning a source network address to an outbound packet, associating the outbound packet with a network service and identifying a first network interface associated with the network service. The method further entails inquiring into and confirming that the first network interface is associated with the source network address. The method further entails constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function, the routing function providing the outbound packet's next hop address. The method further entails transmitting the outbound packet to a node identified by the next hop address from the network interface.
MainClaim: A method, comprising:a) assigning a source network address to an outbound packet, associating said outbound packet with a network service and identifying a first network interface associated with said network service;b) inquiring into and confirming that said first network interface is associated with said source network address;c) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;d) submitting said search key to a routing function, said routing function providing said outbound packet's next hop address; and,e) transmitting said outbound packet to a node identified by said next hop address from said network interface.

2009/0304005	ROUTING TABLE LOOKUP ALGORITHM EMPLOYING SEARCH KEY HAVING DESTINATION ADDRESS AND INTERFACE COMPONENT	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	5	95%	☐

Abstract: A routing table lookup algorithm is described that, for a first outbound packet, performs a first route lookup into the routing table with a first search key that includes the first packet's destination address and a first network interface identifier, and, for a second outbound packet, performs a second route lookup into the routing table with a second search key that includes the second outbound packet's destination address but does not include any network interface identifier.
MainClaim: A method, comprising:for a first outbound packet, performing a first route lookup into a routing table with a first search key that includes said first packet's destination address and a first network interface identifier; and,for a second outbound packet, performing a second route lookup into said routing table with a second search key that includes said second outbound packet's destination address but does not include any network interface identifier.

2009/0304000	OUTBOUND TRANSMISSION OF PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	8	95%	☐

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address.

The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.
MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

7,190,668	Method of anchoring flows	Nokia Corporation	Francis; Paul | Rodriguez; Pablo Rodriguez	370	G06F	20011127	0	100%	☐

Abstract: A method is described for anchoring IP flows in a network. An IP flow is transmitted by a mobile node and received at a access router attached to the mobile node. The IP flow is transferred to an original access router, which maintains a host table associated with the mobile node. And a server that is attached to the original access router may be accessed to service the IP flow.
MainClaim: A method of anchoring an IP flow comprising: receiving the IP flow of a plurality of IP flows from a mobile node at an attached access router; transferring the IP flow from the attached access router to an original access router, the attached access router not diverting the IP flow through its attached server and the original access router maintaining a host table associated with the mobile node; and accessing a server attached to the original access router to service the IP flow, wherein the original access router is a router that the mobile node was attached to prior to the attached access router.

2008/0298257	METHOD AND APPARATUS FOR DETECTING A ROUTER THAT IMPROPERLY RESPONDS TO ARP REQUESTS	APPLE INC.	Cheshire; Stuart D. | Graessley; Joshua V.	370	G06F	20080813	2	93%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests and ARP probes for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) probes, comprising:sending a first ARP probe for a link-local IP address;when a response is received to the first ARP probe, sending a second ARP probe for a reserved link-local IP address which should not be assigned to any device; andwhen a response is received to the second ARP probe, recording an identity of a responding device and ignoring subsequent ARP responses from the responding device.

7,729,292	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20080813	2	93%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests and ARP probes for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) probes, comprising: in a network node: sending a first ARP probe for a link-local IP address; when a response is received to the first ARP probe, sending a second ARP probe for a reserved link-local IP address which should not be assigned to any device; and when a response is received to the second ARP probe, recording an identity of a responding device and ignoring subsequent ARP responses from the responding device.

7,436,783	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20050404	6	93%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) requests, comprising: sending an ARP probe for a link-local address; when a response is received to the ARP probe, sending an ARP request to the responding device asking for an Ethernet address associated with a reserved IP address, wherein the reserved IP address is an Ipv4 link-local broadcast address 169.254.255.255 or an IPv4 link-local address 169.254.0.0, which should not be assigned to any device; and if a response is received from the device to the ARP request, placing the address of the device on a black list associated with a range of link-local IP addresses: and ignoring subsequent ARP

responses from source addresses in the black list for the link-local address range, so that subsequent ARP responses pertaining to that address range from the device will be ignored.

7,460,472	System and method for transmitting information in a communication network	Nokia Corporation	Le; Huihua | Wu; Haitao | Jin; Yuehui | Zhang; Dongmei | Ma; Jian	370	H04J	20031014	0	100%	☐

Abstract: A method and system for transmitting information between a sending means and a receiving means using packets for information transmission. The receipt of transmitted packets is acknowledged and unacknowledged packets are retransmitted from the sending means. The amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets is detected, and the reason for information or packet loss is determined based on the amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets. This amount is compared with a path maximum transmission unit (PMTU) to determine the reason for loss. A single or small number of unacknowledged packets is determined to be a result of Bit Error Rate (BER), whereas a larger number of consecutive unacknowledged packets may be determined to be congestion. Congestion control parameters are kept unchanged when the reason for loss is caused by Bit Error Rate (BER), whereas control parameters are changed when the reason for loss is congestion.
MainClaim: A method, comprising: transmitting information between a sender and a receiver using packets for information transmission, wherein the receipt of transmitted packets is acknowledged to the sender, and unacknowledged packets are retransmitted from the sender; detecting one of an amount of transmitted unacknowledged information and a number of consecutive unacknowledged packets; determining a reason for information or packet loss based on the amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets; adjusting transmission parameters by the sender, depending on whether the determined reason is a bit error rate or congestion; the sender enabling bundling wherein information is bundled in a packet; checking whether bundling is enabled; and changing a determining parameter to determine the reason for information or packet loss depending on whether or not bundling is enabled.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	95%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	95%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

6,999,437	End-to-end location privacy in telecommunications networks	Nokia Corporation	Krishnamurthi; Govindarajan | Chaskar; Hemant M. | Siren; Ritva Tellervo	370	H04Q	20021217	0	100%	☐

Abstract: A method and system for routing messages between hosts while maintaining end-to-end location privacy are disclosed. In order to make routing more efficient, while maintaining location privacy, an encapsulation cache may be created in access routers that have a trust relationship with the respective home networks of the hosts. The encapsulation cache can be used to store home-address to care-of-address correspondences so that the access router, when a host is roaming, can route a message directly to the message's intended recipient, yet still maintain location privacy for the sending host by replacing the host's care-of address at the roaming network with the host's home address.

MainClaim: A method for routing messages from a sending host by an access router in a telecommunications network other than the sending host's home network, comprising:

receiving a first message from the sending host for delivery to a receiving host;

sending the first message to a home network of the sending host;

receiving optimized routing information from the home network of the sending host;

receiving a second message from the sending host for delivery to the receiving host; and

routing the second message to the receiving host based on the received information without sending the second message to the home network of the sending host.

7,436,783	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20050404	6	92%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.

MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) requests, comprising: sending an ARP probe for a link-local address; when a response is received to the ARP probe, sending an ARP request to the responding device asking for an Ethernet address associated with a reserved IP address, wherein the reserved IP address is an Ipv4 link-local broadcast address 169.254.255.255 or an IPv4 link-local address 169.254.0.0, which should not be assigned to any device; and if a response is received from the device to the ARP request, placing the address of the device on a black list associated with a range of link-local IP addresses: and ignoring subsequent ARP responses from source addresses in the black list for the link-local address range, so that subsequent ARP responses pertaining to that address range from the device will be ignored.

7,609,640	Methods and applications for avoiding slow-start restart in transmission control protocol network communications	Nokia Corporation	Ahuja; Sadhna | Wu; Tao | Dixit; Sudhir	370	G01R	20031219	0	100%	☐

Abstract: A novel approach is provided for avoiding the "slow-start restart" in TCP communications when network conditions dictate such. The disclosed approach serves to overcome the latency related to the "slow-start restart" by assessing network conditions and avoiding the "slow-start restart" when network conditions justify the avoidance. The disclosed methods, applications and devices implement the periodic communication of a probe packet that is generated and transmitted from a TCP sender to a TCP receiver during the period that the TCP network connection remains idle. Receipt of the probe packet by the TCP receiver will trigger transmission of an acknowledgment message by the TCP receiver. Upon receipt of the acknowledgement message the TCP sender will restart measurement of the idleness period and, as such the "slow-start restart" is avoided.

MainClaim: A method for avoiding slow-start restart in network communications, the method comprising: establishing a connection between a sender and a receiver; establishing a congestion window at the sender upon establishing the connection, wherein the congestion window defines a maximum amount of data that is transmittable by the sender prior to receipt of an acknowledgement to previously transmitted data from the receiver; setting an idle counter at the sender that measures an interval between a current time and a time of a last communication with the receiver; transmitting, from the sender to the receiver, a probe packet; receiving, from the receiver at the sender, upon receipt of the probe packet, an acknowledgement; expanding the congestion window upon receipt of the acknowledgement to the probe packet and prior to receipt of an acknowledgement to previously transmitted data from the receiver to allow for a greater amount of data to be transmitted; and resetting the idle counter to avoid occurrence of the slow-start restart in the communication upon receipt of the acknowledgement.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a

threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

6,681,259	Method for coupling a wireless terminal to a data transmission network and a wireless terminal	Nokia Mobile Phones Ltd	Lemilainen; Jussi | Haverinen; Henry	709	G06F	19990510	0	100%	☐

Abstract: The invention relates to a terminal (A), which comprises at least one network interface card (NIC1, NIC2, NIC3) for setting up a data transmission connection to a communication network (NW1, NW2, NW3, MNW) for packet switched data transmission, and means (PD) for forming packets of the information to be transmitted and for unpacking information from the received packets. The terminal (A) is allocated at least one first address identifying the terminal (A), and at least one data network-specific second address. The means (PD) for forming packets comprise means for connecting the first address to the packets, and the terminal (A) also comprises a network interface selection driver (NISD), which contains means for selecting the communication network (NW1, NW2, NW3, MNW) used in data transmission at a given time, means for transmitting packets between the means (PD) for forming packets and the network interface card (NIC1, NIC2, NIC3) corresponding to the data transmission network (NW1, NW2, NW3, MNW) used at a given time, and means for modifying the first address to the second address according to the data transmission network used in the packets at a given time.
MainClaim: A terminal (A) comprising: at least one network interface card (NIC1, NIC2, NIC3) for setting up a data transmission connection to a communication network (NW1, NW2, NW3, MNW) for packet switched data transmission, and protocol-driver means (PD) for forming packets of information to be transmitted and for unpacking information from received packets, wherein

the terminal (A) is allocated at least one first address identifying the terminal (A) and at least one data network-specific second address, the protocol-driver means (PD) comprising connecting means for connecting the first address to the packets, and

the terminal (A) also comprises a network interface selection driver (NISD) to enable the terminal to communicate selectively via any one of a plurality of communication networks, which contains selecting means for selecting the communication network (NW1, NW2, NW3, MNW) to be used in data transmission, transmitting means for transmitting packets between the protocol-driver means (PD) and the network interface card (NIC1, NIC2, NIC3) corresponding to the data transmission network (NW1, NW2, NW3, MNW) selected by the selecting means, and modifying means for modifying the first address according to the data transmission network being used in the packets.

7,447,927	Method and apparatus for waking up a sleeping system	Apple Inc.	Siegmund; Dieter W.	713	G06F	20050823	6	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Note that, since the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Note that using the upper-layer protocol enables the remote system to communicate with the relay agent even though they are on different LANs. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up. Recall that the remote system cannot use the lower-layer protocol to send a wake-up packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs. The remote system overcomes this limitation by first sending a wake-up packet to the relay agent using the upper-layer protocol, which causes the relay agent to send another wake-up packet to the sleeping target system using the lower-layer protocol.
MainClaim: A method for waking up a sleeping target system located on a target LAN (Local Area Network) from a remote system on a remote LAN, wherein the sleeping target system receives packets of a first protocol which cannot be

used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising: creating a first wake-up packet, wherein creating the first wake-un packet involves determining an IP (Internet Protocol) address of a relay agent located on the target LAN based on an IP address of the sleeping target system and a subnet mask; and sending the first wake-up packet to the relay agent using a second protocol; wherein sending the first wake-up packet to the relay agent causes the relay agent to use the first protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up; and wherein the first wake-up packet is a network-layer packet which includes a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains: a client hardware address field which is set to a link-layer address of the sleeping target system; a client IP address field which is set to a network-layer address associated with the link-layer address of the sleeping target system; and a relay agent network-layer address field which is set to a network-layer address associated with an interface of the relay agent which is coupled with the target LAN, wherein the relay agent located on the target LAN is a DHCP relay agent.

2009/0030970	METHOD AND APPARATUS FOR WAKING UP A SLEEPING SYSTEM	APPLE INC.	Siegmund; Dieter W.	709	G06F	20080930	7	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Because the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up.
MainClaim: A computer-readable storage medium storing instructions that when executed by a relay agent located on a target LAN (Local Area Network) cause the relay agent to perform a method which allows a remote system located on a remote LAN to wake up a sleeping target system located on the target LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising:receiving a first wake-up packet from the remote system using a second protocol;creating a second wake-up packet using the first wake-up packet; andsending the second wake-up packet to the sleeping target system using the first protocol, wherein sending the second wake-up packet causes the sleeping target system to wake up.

7,298,743	Mobile router support for IPv6	Nokia Corporation	Markki; Outi Elisa | Kniveton; Timothy J. | Malinen; Jari T. | Devarapalli; Vijay | Perkins; Charles E.	370	H04L	20021114	0	100%	☐

Abstract: A method and system for supporting mobile routers in Internet Protocol version 6 (IPv6) is provided. A mobile router obtains a care-of-address associated with an address configuration. The mobile router registers the care-of-address with a home agent. A bi-directional tunnel is established between the mobile router and the home agent. Packets are then forwarded via the bi-directional tunnel.
MainClaim: A method for supporting mobile routers in IPv6, comprising: obtaining, by a mobile router from a visited network, a care-of-address associated with an address configuration; registering, by the mobile router, the care-of-address with a home agent of the mobile router; establishing, by the mobile router, a bi-directional tunnel between the mobile router and the home agent; forwarding from the mobile router to the home agent configuration information of a mobile network via the bi-directional tunnel wherein the mobile network is accessible through the mobile router; requesting that packets that include any address prefix within a set of prefixes be forwarded to the mobile router; forwarding a packet from the mobile router to a mobile node on the mobile network, wherein the mobile node has a care-of address that includes a prefix of a home address of the mobile network, and wherein the configuration information is static and the mobile router is configured to send all outgoing traffic not destined to the mobile network, to the home agent.

7,436,783	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20050404	6	92%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) requests, comprising: sending an ARP probe for a link-local address; when a response is received to the ARP probe, sending an ARP request to the responding device asking for an Ethernet address associated with a reserved IP address, wherein the reserved IP address is an Ipv4 link-local broadcast address 169.254.255.255 or an IPv4 link-local address 169.254.0.0, which should not be assigned to any device; and if a response is received from the device to the ARP request, placing the address of the device on a black list associated with a range of link-local IP addresses: and ignoring subsequent ARP responses from source addresses in the black list for the link-local address range, so that subsequent ARP responses pertaining to that address range from the device will be ignored.

	Method and								

7,729,292	apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20080813	2	92%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests and ARP probes for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) probes, comprising: in a network node: sending a first ARP probe for a link-local IP address; when a response is received to the first ARP probe, sending a second ARP probe for a reserved link-local IP address which should not be assigned to any device; and when a response is received to the second ARP probe, recording an identity of a responding device and ignoring subsequent ARP responses from the responding device.

2008/0298257	METHOD AND APPARATUS FOR DETECTING A ROUTER THAT IMPROPERLY RESPONDS TO ARP REQUESTS	APPLE INC.	Cheshire; Stuart D. | Graessley; Joshua V.	370	G06F	20080813	2	92%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests and ARP probes for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) probes, comprising:sending a first ARP probe for a link-local IP address;when a response is received to the first ARP probe, sending a second ARP probe for a reserved link-local IP address which should not be assigned to any device; andwhen a response is received to the second ARP probe, recording an identity of a responding device and ignoring subsequent ARP responses from the responding device.

6,973,086	Method and system for securing mobile IPv6 home address option using ingress filtering	Nokia Corporation	Patil; Basavaraj | Perkins; Charles E.	370	H04L	20020628	0	100%	☐

Abstract: The invention provides for disabling communication at the access router on a visited network that supports mobile IP v6 and the home address destination option. Until a home agent or a correspondent node authenticates the home IP address of the mobile node and the access router verifies this address, the mobile node is unable to communicate with other resources over the visited network. If the home IP address included in a binding acknowledgement message is verified by the access router and affirmatively compared to the state of a corresponding binding update message from the mobile node, the access router enables subsequent messages to be communicated over the visited network between the mobile node and other resources.
MainClaim: A method for securely communicating packets that include the home address destination option in a mobile IPv6 protocol network, comprising:

(a) providing a care of address to a mobile node that employs an access router to communicate with at least one resource over a visited network;

(b) enabling a binding update message from the mobile node to be forwarded by the access router to another node for authentication, wherein the other node sends a binding acknowledgement message to the mobile node if a home IP address included in the binding update message is authentic; and

(c) if the binding acknowledgement message from the other node is determined by the access router to verify the home IP address for the mobile node, enabling the mobile node to communicate another type of data through the access router with at least one resource over the visited network, wherein until the home IP address is verified by the access router, the mobile node is unable to communicate the other type of data through the access router.

7,447,927	Method and apparatus for waking up a sleeping system	Apple Inc.	Siegmund; Dieter W.	713	G06F	20050823	6	93%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Note that, since the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Note that using the upper-layer protocol enables the remote system to communicate with the relay agent even though they are on different LANs. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to

wake up. Recall that the remote system cannot use the lower-layer protocol to send a wake-up packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs. The remote system overcomes this limitation by first sending a wake-up packet to the relay agent using the upper-layer protocol, which causes the relay agent to send another wake-up packet to the sleeping target system using the lower-layer protocol.
MainClaim: A method for waking up a sleeping target system located on a target LAN (Local Area Network) from a remote system on a remote LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising: creating a first wake-up packet, wherein creating the first wake-un packet involves determining an IP (Internet Protocol) address of a relay agent located on the target LAN based on an IP address of the sleeping target system and a subnet mask; and sending the first wake-up packet to the relay agent using a second protocol; wherein sending the first wake-up packet to the relay agent causes the relay agent to use the first protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up; and wherein the first wake-up packet is a network-layer packet which includes a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains: a client hardware address field which is set to a link-layer address of the sleeping target system; a client IP address field which is set to a network-layer address associated with the link-layer address of the sleeping target system; and a relay agent network-layer address field which is set to a network-layer address associated with an interface of the relay agent which is coupled with the target LAN, wherein the relay agent located on the target LAN is a DHCP relay agent.

2009/0030970	METHOD AND APPARATUS FOR WAKING UP A SLEEPING SYSTEM	APPLE INC.	Siegmund; Dieter W.	709	G06F	20080930	7	93%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Because the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up.
MainClaim: A computer-readable storage medium storing instructions that when executed by a relay agent located on a target LAN (Local Area Network) cause the relay agent to perform a method which allows a remote system located on a remote LAN to wake up a sleeping target system located on the target LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising:receiving a first wake-up packet from the remote system using a second protocol;creating a second wake-up packet using the first wake-up packet; andsending the second wake-up packet to the sleeping target system using the first protocol, wherein sending the second wake-up packet causes the sleeping target system to wake up.

7,436,783	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20050404	6	92%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) requests, comprising: sending an ARP probe for a link-local address; when a response is received to the ARP probe, sending an ARP request to the responding device asking for an Ethernet address associated with a reserved IP address, wherein the reserved IP address is an Ipv4 link-local broadcast address 169.254.255.255 or an IPv4 link-local address 169.254.0.0, which should not be assigned to any device; and if a response is received from the device to the ARP request, placing the address of the device on a black list associated with a range of link-local IP addresses: and ignoring subsequent ARP responses from source addresses in the black list for the link-local address range, so that subsequent ARP responses pertaining to that address range from the device will be ignored.

7,623,500	Method and system for maintaining a secure tunnel in a packet-based communication system	Nokia Corporation	Riittinen; Heikki | Savolainen; Juha P.	370	H04W	20031222	0	100%	☐

Abstract: The invention relates to a mechanism for maintaining a secure tunnel in a packet-based communication system. A secure tunnel is established between a security gateway and a mobile terminal being located at a first address in a first network, wherein the security gateway connects the first network to a second network and the mobile terminal has a second address that identifies the mobile terminal in the second network. In the gateway, the tunnel is identified based on the second address in packets destined for the mobile terminal from the second network. A change is detected in the first address of the mobile terminal and an update message including a new address value of the first address is sent to the security gateway. Based on the update message, the first address associated with the secure tunnel is updated in the security gateway.
MainClaim: A method comprising: establishing a secure tunnel between a security gateway in an second network and a mobile terminal located at a first address in a first network, wherein the first network is a public packet network and the

second network is a private packet network and the security gateway connects the first network to a second network and the mobile terminal has a second address that identifies the mobile terminal in the second network; in the security gateway, identifying the secure tunnel based on the second address in packets destined for the mobile terminal from the second network detecting a change in the first address of the mobile terminal; in response to the detecting step, sending an update message to the security gateway, wherein the update message includes a new address value of the first address; and wherein the update message also includes data to be transmitted to the security gateway; and based on the update message, updating the first address associated with the secure tunnel; wherein sending comprising creating an update message includes a network address translation discovery payload configured to detect a network address translation device between the mobile terminal and the security gateway.

7,436,783	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. | Graessley; Joshua V.	370	H04L	20050404	6	92%	☐

Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.
MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) requests, comprising: sending an ARP probe for a link-local address; when a response is received to the ARP probe, sending an ARP request to the responding device asking for an Ethernet address associated with a reserved IP address, wherein the reserved IP address is an Ipv4 link-local broadcast address 169.254.255.255 or an IPv4 link-local address 169.254.0.0, which should not be assigned to any device; and if a response is received from the device to the ARP request, placing the address of the device on a black list associated with a range of link-local IP addresses: and ignoring subsequent ARP responses from source addresses in the black list for the link-local address range, so that subsequent ARP responses pertaining to that address range from the device will be ignored.

6,542,931	Using sparse feedback to increase bandwidth efficiency in high delay, low bandwidth environment	Nokia Corporation	Le; Khiem | Zheng; Haihong | Liu; Zhigang | Clanton; Christoph	709	G06F	19991105	0	100%	☐

Abstract: A method and apparatus for eliminating the inefficient use of network bandwidth cause by numerous acknowledgment transmitted by the receiver to the transmitter by providing sparse feedback from the receiver to the transmitter indicating receipt of packets having headers to be used as reference headers. In the invention, upon receipt in the receiver of a packet having a reference header, a feedback is provided to the transmitter indicating receipt of the packet having the reference header. Thereafter, the receiver waits a predetermined period of time before providing another feedback in response to another packet having a reference header. The predetermined period of time allows time for the feedback to be received by the transmitter and for information from the transmitter indicating receipt of the feedback to be received by the receiver.
MainClaim: In a system having a transmitter which transmits a plurality of packets to a receiver, each of the packets containing a header, a method of providing sparse feedback from the receiver to the transmitter indicating receipt of a packet having a header to be used as reference header, comprising:

transmitting from the transmitter to the receiver a packet having a header to be used as a reference header;

receiving in the receiver said packet having the reference header and in response providing feedback from the receiver to the transmitter indicating receipt of said packet having the reference header; and

waiting a predetermined period of time before providing another feedback in response to another packet having the reference header to permit receipt of information in the receiver indicating that the transmitter received said feedback,

wherein said information received in the receiver includes information transmitted by the transmitter indicating that the transmitter has altered its behavior based on receipt of said feedback.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

	Real time								

7,600,037	transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,013,346	Connectionless protocol	Apple Computer, Inc.	Tucker; Rusty	709	G06F	20001006	6	92%	☐

Abstract: Packets transmitted from a server into a computer network are assigned a sequence number, a retransmit time and a time to live. Each packet is retransmitted upon the expiration of the retransmit time if no acknowledgment has been received from a client to which the packet was sent. The packet is removed from a retransmit buffer if the time to live timer expires prior to any acknowledgment being received. Multiple acknowledgments may be combined into a coalesced acknowledgment.
MainClaim: A method for real time transmission of frame-based content between a network server and a network client comprising the steps of:

designating individual packets of said content as either a frame packet that contains information for reconstructing an entire frame of said content or a differential packet that contains changes to a frame;

assigning to each of said packets a sequence number and a timer for retransmission retention, wherein the duration of the timers for frame packets is longer than for differential packets;

transmitting each of said packets to said network client;

detecting an acknowledgment for one or more packets received at said network client;

retransmitting any of said packets for which no acknowledgment is detected if their respective timers have not expired; and

terminating the retention of each packet whose timer has expired, wherein differential packets are removed more frequently than frame packets in order to ensure that critical information is not lost when an acknowledgment is not detected.

7,225,266	Adaptive delayed ACK switching for TCP applications	Nokia Corporation	Ameigeiras; Pablo | Sillasto; Eero | Wigard; Jeroen	709	G06F	20021220	0	100%	☐

Abstract: According to the present invention the use of a delayed acknowledgment procedure of TCP in a communication network system arranged to transport TCP/IP packets is controlled. A burstiness of received TCP packets transmitted in the communication network system from an entity to a device is monitored and it is decided whether the monitored burstiness meets a predefined condition. On the basis of the decision result the delayed acknowledgment procedure is enabled or disabled.
MainClaim: A device, comprising: a receiver unit configured to receive transmission control protocol packets; a monitor unit configured to monitor a burstiness of received transmission control protocol packets transmitted from an entity of a communication network system configured to transport transmission control protocol/internet protocol packets; a decision unit configured to decide whether the monitored burstiness meets a predefined condition; and a control unit configured to disable a delayed acknowledgment procedure of transmission control protocol or enable the delayed acknowledgment procedure based on a decision result made by the decision unit, wherein the monitor unit comprises a measurement unit configured to measure an interarrival time of the received transmission control protocol packets for calculating the burstiness therefrom, wherein the measurement unit is configured to measure consecutive interarrival times, and the monitor unit further comprises a computation unit configured to compute an average interarrival time T_{avg} from the measured interarrival times for calculating the burstiness therefrom, wherein the monitor unit further comprises an initialization unit configured to initialize a counter T_{hr} when the delayed acknowledgment procedure is in a disabled state and configured to decrement the counter when the condition $T_1 \leq X_1 * T_{avg}$ is met, with T_1 being the currently measured interarrival time, T_{avg} being the average interarrival time of preceding N packets, and X_1 being an adjustable parameter, and wherein the decision unit is configured to decide that the burstiness is low when the condition $T_{hr} = 0$ is met, and as a result the delayed acknowledgment procedure is enabled by the control unit.

	Connectionless								

2006/0155870	protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

6,850,492	Method and system for enabling a route and flow table update in a distributed routing platform	Nokia Corporation	Chander; Vijay K. | Mahamuni; Atul B. | Sankar; Ramkumar | Iyer; Sreeram | Tzeng; Henry Hong-Yi	370	H04J	20021122	0	100%	☐

Abstract: A system and method is directed to updating a route table in a distributed routing platform, thereby enabling multiple routing protocols to be executed on different routing modules. A slave route distributor on one routing module is configured to receive a route from a local route table and flow manager. The slave route distributor communicates the route to a master route distributor on another routing module by way of an inter process communications protocol. The master route distributor provides the route to its local route table and flow manager, where a determination is made whether the route is a best route. If the route is a best route, the master route distributor updates its external routing table. The master route distributor also distributes the route to another slave route distributor on yet another routing module, where the route enables an update to a remote routing protocol, and routing table.
MainClaim: A method for updating a routing table, comprising:

receiving a route on a current node;

if the route is a best route, updating a local routing table with the best route; and

if the current node includes a master route distributor, distributing the best route associated with a classification rule to at least one remote node, wherein the remote node is enabled to update a remote routing table with the best route, and wherein the classification rule enables processing a racket based on contents of the packet; and

if the current node includes a slave route distributor, forwarding the route to the master route distributor.

2009/0304001	SOURCE ADDRESS BASED ROUTING PROCESS	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	7	92%	☐

Abstract: A method is described that entails assigning a source network address to an outbound packet, associating the outbound packet with a network service and identifying a first network interface associated with the network service. The method further entails inquiring into and confirming that the first network interface is associated with the source network address. The method further entails constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function, the routing function providing the outbound packet's next hop address. The method further entails transmitting the outbound packet to a node identified by the next hop address from the network interface.
MainClaim: A method, comprising:a) assigning a source network address to an outbound packet, associating said outbound packet with a network service and identifying a first network interface associated with said network service;b)

inquiring into and confirming that said first network interface is associated with said source network address;c) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;d) submitting said search key to a routing function, said routing function providing said outbound packet's next hop address; and,e) transmitting said outbound packet to a node identified by said next hop address from said network interface.

2009/0304000	OUTBOUND TRANSMISSION OF PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	8	92%	☐

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.

MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

2009/0304006	ROUTING TABLE BUILD ALGORITHM FOR A ROUTING TABLE THAT USES A SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	2	92%	☐

Abstract: A method is described that involves, in view of a first default entry for a first subnet that is reachable through a first network service, where the first default entry has a numeric destination value, and in view of a second default entry for a second subnet that is reachable through a second network service, wherein the second default entry has the numeric destination value, sorting the first and second default entries by deciding that the first network service is ranked higher than the second network service. The method further involves configuring the first default entry within a routing table to have the numeric destination and not an interface component within the first default entry's search term, and, configuring the second default entry within the routing table to have the numeric destination and the second network service's interface component within the second default entry's search term.

MainClaim: A method, comprising:in view of a first default entry for a first subnet that is reachable through a first network service, said first default entry having a numeric destination value, and in view of a second default entry for a second subnet that is reachable through a second network service, said second default entry having said numeric destination value, sorting said first and second default entries by:deciding that said first network service is ranked higher than said second network service; and,configuring said first default entry within a routing table to have said numeric destination and not an interface component within said first default entry's search term; and,configuring said second default entry within said routing table to have said numeric destination and said second network service's interface component within said second default entry's search term.

7,668,202	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet; Michel	370	H04J	20041007	0	100%	☐

Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.

MainClaim: An apparatus comprising: a communications bus; and a processor configured to implement a protocol stack comprising a datalink layer coupled to a physical layer, where the protocol stack operates with a protocol having frames, where each frame is comprised of a plurality of channels, where each channel is comprised of at least one token, where at least one channel of the plurality of channels is defined as a low latency channel for traffic having a low latency requirement, where said datalink layer is operable to intersperse at least one low latency channel token with tokens

from at least one other channel to obtain a set of interspersed tokens, where the processor is further configured to transmit the set of interspersed tokens to another node via the communications bus.

7,490,174	Method and apparatus for border node behavior on a full-duplex bus	Apple Inc.	Hauck; Jerrold V. | Whitby-Strevens; Colin	710	G06F	20061116	1	93%	☐

Abstract: A method and apparatus relating to the behavior of border nodes within a high performance serial bus system is disclosed.A method for determining and communicating the existence of a hybrid bus is disclosed. A method for determining a path to a senior border node is disclosed, as is a method for identifying a senior border node Various methods for properly issuing gap tokens within a beta cloud are disclosed.

MainClaim: In a communications system comprising at least one serial bus, at least one node operating only in a first mode, and at least one other node operating in a second mode, a border apparatus comprising: a first port operatively coupled to said at least one node operating in said first mode; a second port operatively coupled to said at least one node operating in said second mode; and a transfer apparatus adapted to transfer gap timing requirements associated with said at least one node operating in said second mode to said border apparatus, said transfer apparatus further adapted to, upon completion of transfer tasks, turn over control to a senior border apparatus operating in said second mode for management of gap timing by said senior border apparatus.

7,701,966	Method and apparatus for ensuring compatibility on a high performance serial bus	Apple Inc	Hauck; Jerrold V. | Whitby-Strevens; Colin	370	H04S	20051121	1	92%	☐

Abstract: A data communications system is disclosed having at least one Legacy cloud coupled to at least one Beta cloud. The system further having at least one BOSS node and at least one border node. A method for ensuring compatibility is disclosed comprising determining when the BOSS node is idle, determining whether the last packet transmitted by any border node was an Alpha format packet if the BOSS node is idle, and unlocking the Legacy cloud if the last packet transmitted by the border node was not an Alpha format packet.

MainClaim: A non-transitory machine-readable medium containing instructions which when executed by a computer ensure compatibility in a data communications system compliant with the IEEE-1394b standard and having at least one B PHY, by performing the acts of: determining whether the B PHY desires to communicate at a speed on a bus having a peer device not capable of communicating at said speed; and speed filtering said peer device if said B PHY determines that said peer device cannot communicate at said speed, said speed filtering comprising sending a designated symbol to said peer device.

2006/0072590	Method and apparatus for ensuring compatibility on a high performance serial bus	Apple Computer, Inc.	Hauck; Jerrold V. | Whitby-Strevens; Colin	370	H04L	20051121	1	92%	☐

Abstract: A data communications system is disclosed having at least one Legacy cloud coupled to at least one Beta cloud. The system further having at least one BOSS node and at least one border node. A method for ensuring compatibility is disclosed comprising determining when the BOSS node is idle, determining whether the last packet transmitted by any border node was an Alpha format packet if the BOSS node is idle, and unlocking the Legacy cloud if the last packet transmitted by the border node was not an Alpha format packet.

MainClaim: A computer-readable medium containing instructions which, when executed by a computer, ensure compatibility in a data communications system between at least one Legacy cloud coupled to at least one Beta cloud and at least one BOSS node and at least one border node, by performing the acts of: determining when said BOSS node is idle; determining whether the last packet transmitted by any border node was an Alpha format packet if said BOSS node is idle; and unlocking said Legacy cloud if the last packet transmitted by said border node was not an Alpha format packet.

7,296,092	Apparatus for inter-domain communications including a virtual switch for routing data packets between virtual interfaces of the virtual switch	Nokia, Inc.	Nguyen; Tuyen	709	G06F	20040630	0	100%	☐

Abstract: An apparatus for a multi-domain computer system includes multiple virtual system domains, each having an associated, independent routing instance. A virtual switch is created to forward packets between the domains. The virtual switch is configured to operate substantially as if it were a physical layer-2 switch. The virtual switch and the virtual domains are connected together by virtual interfaces, where the virtual switch, the virtual domains, and the virtual interfaces are all created in software. Further, protocols such as ARP, IP, and/or IPv6 operate over the virtual interfaces in substantially the same way that they would over Ethernet. Also, each domain has a software driver that behaves like an Ethernet driver, and has a 48-bit Ethernet-like address that is used for the physical address.

MainClaim: A network device for inter-domain communications, comprising: a transceiver that is configured to transmit and receive packets over a network based, in part, on a network protocol; and a processor that is configured to create a virtual switch that is configured to receive a packet at one of a plurality of interfaces associated with the virtual switch, wherein the plurality of interfaces includes a plurality of virtual interfaces, and wherein the virtual switch is configured to be associated with at least three virtual interfaces, and to provide the packet at another of the plurality of interfaces, wherein the virtual switch is configured to provide the packet at the other of the plurality of interfaces by determining if

a destination address for the packet is included in a neighbor cache table that is associated with the virtual switch, and wherein the virtual switch is further configured to add an entry to a neighbor cache table such that the entry includes a source address of the packet, and further includes the one of the plurality of interfaces that received the packet.

2009/0030970	METHOD AND APPARATUS FOR WAKING UP A SLEEPING SYSTEM	APPLE INC.	Siegmund; Dieter W.	709	G06F	20080930	7	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Because the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up.
MainClaim: A computer-readable storage medium storing instructions that when executed by a relay agent located on a target LAN (Local Area Network) cause the relay agent to perform a method which allows a remote system located on a remote LAN to wake up a sleeping target system located on the target LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising:receiving a first wake-up packet from the remote system using a second protocol;creating a second wake-up packet using the first wake-up packet; andsending the second wake-up packet to the sleeping target system using the first protocol, wherein sending the second wake-up packet causes the sleeping target system to wake up.

7,447,927	Method and apparatus for waking up a sleeping system	Apple Inc.	Siegmund; Dieter W.	713	G06F	20050823	6	92%	☐

Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Note that, since the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Note that using the upper-layer protocol enables the remote system to communicate with the relay agent even though they are on different LANs. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up. Recall that the remote system cannot use the lower-layer protocol to send a wake-up packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs. The remote system overcomes this limitation by first sending a wake-up packet to the relay agent using the upper-layer protocol, which causes the relay agent to send another wake-up packet to the sleeping target system using the lower-layer protocol.
MainClaim: A method for waking up a sleeping target system located on a target LAN (Local Area Network) from a remote system on a remote LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising: creating a first wake-up packet, wherein creating the first wake-un packet involves determining an IP (Internet Protocol) address of a relay agent located on the target LAN based on an IP address of the sleeping target system and a subnet mask; and sending the first wake-up packet to the relay agent using a second protocol; wherein sending the first wake-up packet to the relay agent causes the relay agent to use the first protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up; and wherein the first wake-up packet is a network-layer packet which includes a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains: a client hardware address field which is set to a link-layer address of the sleeping target system; a client IP address field which is set to a network-layer address associated with the link-layer address of the sleeping target system; and a relay agent network-layer address field which is set to a network-layer address associated with an interface of the relay agent which is coupled with the target LAN, wherein the relay agent located on the target LAN is a DHCP relay agent.

6,680,955	Technique for compressing a header field in a data packet	Nokia Networks Oy	Le; Khiem	370	H04J	20000309	0	100%	☐

Abstract: A timer based header compression/decompression technique and timer and reference based technique are provided. A source generates a header field, such as an RTP time stamp. A packet including the header field is sent to a compressor which calculates a compressed header field based on the header field of the packet from the source and a jitter quantity. The compressed header field is calculated by calculating a jitter effect the network before the compressor has on the transmission of packets and calculating a jitter effect the network between the compressor and a decompressor has on the transmission of packets. The packet including the compressed header field is transmitted to a decompressor which includes a local timer. The decompressor decompresses the compressed header field by calculating an approximation of the header field based on the elapsed time since the arrival of a previous packet and the field value in the previous packet. The approximation of the header field is then corrected based on the compressed header field provided in the packet.
MainClaim: A method of transmitting in a network between a source and a receiver a current header field of a current packet using a timer-based compression technique, comprising:

providing from a compressor to a decompressor an initial value of a header field;

calculating at the compressor a compressed header field of the current packet based on the current header field of the

current packet and jitter,

wherein said calculating step comprises the steps of:

calculating a jitter effect the network between a source and said decompressor has on the transmission of packets, and

calculating the compressed header field as a portion of a field value, said portion being a function of jitter;

receiving the compressed header field of the current packet at the decompressor;

estimating the header field of the current packet based on elapsed time at the decompressor between reception of the compressed header field of the current packet and reception of a header field of a previous packet which was decompressed and a decompressed field value of the previous packet; and

correcting the estimated current header field based on the compressed header field received at the decompressor.

6,996,624	Reliable real-time transport protocol	Apple Computer, Inc.	LeCroy; Chris | Vaughan; Gregory	709	G06F	20010927	1	93%	☐

Abstract: Reliability is added to RTP by having a client acknowledge to the server each of the RTP packets received by the client, and retransmitting from the server to the client any of the packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to the timestamp. The server continuously determines a maximum number of bytes that may be contained in the RTP packets streaming into the network and, in the event a number of bytes in the RTP packets exceeds the maximum number, discontinues streaming of the RTP packets until it is determined that the number of bytes is less than the maximum number. The server also continuously determines a present streaming rate at which the RTP packets are streamed into the network wherein the present streaming rate exceeds the normal streaming rate.
MainClaim: In a computer network having at least one client and at least one server, said client and said server being selectively in communication with each other over said network, said server streaming into said network a plurality of Real-time Transport Protocol, RTP, packets addressed for said client at a normal streaming rate commensurate with a rate of reading said packets at said client, each of said RTP packets including at least a sequence number and a timestamp, a reliable RTP method comprising:

acknowledging to said server each of said RTP packets received by said client;

re-transmitting from said server to said client any of said RTP packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to said timestamp;

continuously determining a maximum number of bytes that may be contained in said RTP packets streaming into said network and, in the event a number of bytes in said RTP packets exceeds said maximum number, discontinuing streaming of said RTP packets until said determining step indicates said number of bytes is less than said maximum number; and

continuously determining a present streaming rate at which said RTP packets are streamed into said network wherein said present streaming rate exceeds said normal streaming rate.

7,380,014	Reliable real-time transport protocol	Apple Inc.	LeCroy; Chris | Vaughan; Gregory	709	G06F	20060207	2	92%	☐

Abstract: Reliability is added to RTP by having a client acknowledge to the server each of the RTP packets received by the client, and retransmitting from the server to the client any of the packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to the timestamp. The server continuously determines a maximum number of bytes that may be contained in the RTP packets streaming into the network and, in the event a number of bytes in the RTP packets exceeds the maximum number, discontinues streaming of the RTP packets until it is determined that the number of bytes is less than the maximum number. The server also continuously determines a present streaming rate at which the RTP packets are streamed into the network wherein the present streaming rate exceeds the normal streaming rate.
MainClaim: A method of operating a server that transmits a plurality of Real-time Transport Protocol (RTP) packets to clients over a network, comprising the following steps: determining whether each RTP packet sent to a client on the network is acknowledged by said client; re-transmitting any of said RTP packets that remain unacknowledged after a predetermined time duration subsequent to sending said packets; continuously determining a maximum number of bytes that can be contained in RTP packets transmitted over said network, and in the event a number of bytes in RTP packets transmitted by said server exceeds said maximum number, discontinuing transmission of said RTP packets until said determining step indicates said number of bytes is less than said maximum number.

2006/0129693	Reliable real-time transport protocol	Apple Computer, Inc.	LeCroy; Chris | Vaughan; Gregory	709	G06F	20060207	2	92%	☐

Abstract: Reliability is added to RTP by having a client acknowledge to the server each of the RTP packets received by the client, and retransmitting from the server to the client any of the packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to the timestamp. The server continuously determines a maximum number of bytes that may be contained in the RTP packets streaming into the network and, in the event a number of bytes in the RTP packets exceeds the maximum number, discontinues streaming of the RTP packets until it is determined that the number of bytes is less than the maximum number. The server also continuously determines a present streaming rate at which the RTP packets are streamed into the network wherein the present streaming rate

exceeds the normal streaming rate.
MainClaim: A method of operating a server that transmits a plurality of Real-time Transport Protocol (RTP) packets to clients over a network, comprising the following steps: determining whether each RTP packet sent to a client on the network is acknowledged by said client; re-transmitting any of said RTP packets that remain unacknowledged after a predetermined time duration subsequent to sending said packets; continuously determining a maximum number of bytes that can be contained in RTP packets transmitted over said network, and in the event a number of bytes in RTP packets transmitted by said server exceeds said maximum number, discontinuing transmission of said RTP packets until said determining step indicates said number of bytes is less than said maximum number.

7,548,945	System, network device, method, and computer program product for active load balancing using clustered nodes as authoritative domain name servers	Nokia Corporation	Asnis; Jim	709	G06F	20050629	0	100%	☐

Abstract: A cluster of devices is provided that shares a domain name and functions as the authoritative name server for the domain. Each device or node in the cluster would typically repeatedly announce status information to all the other nodes in the cluster, such that all the nodes in the cluster are aware of the status information of all other nodes. One of the nodes in the cluster would be designated as a master node. The master node would be assigned an IP address as an authoritative name server, and as such would receive DNS queries for the domain. The master node would select one of the nodes in the cluster to communicate with the client as a result of the DNS query, using the status information of each of the nodes to balance the load on the nodes. The master node would communicate the IP address of the selected node.
MainClaim: A system comprising: a plurality of network devices grouped in a cluster, wherein each network device has a different respective device internet protocol (IP) address; wherein one of the network devices is designated as a master device; wherein the master device is assigned an IP address corresponding to an IP address of an authoritative domain name server; wherein each network device is configured to communicate status information to at least the master device in the cluster; wherein the master device is configured to receive a domain name service (DNS) query based upon a client request, select one of the network devices to communicate with the client based on the status information of each of the network devices, and return a device IP address of the selected one of the network devices in response to the DNS query.

2009/0006635	Network management	Apple Inc.	Siegmund; Dieter	709	G06F	20071210	2	95%	☐

Abstract: Systems and methods relating to managing network addresses. In one implementation, a method is provided. The method includes sending a first request to use a particular network address, sending one or more second requests for respective hardware addresses corresponding to network addresses of one or more network address leases. When a hardware address corresponding to a particular network address lease is received in response to one of the one or more second requests and an acknowledgement of the first request to use the network address is not received determining whether the network address identified by the lease is the same as the network address in the first request, and when the network address is not the same, sending a third request to use the identified network address corresponding to the lease.
MainClaim: A method comprising:sending a first request to use a particular network address;sending one or more second requests for respective hardware addresses corresponding to network addresses of one or more network address leases; andwhen a hardware address corresponding to a particular network address lease is received in response to one of the one or more second requests and an acknowledgement of the first request to use the network address is not received:determining whether the network address identified by the lease is the same as the network address in the first request, andwhen the network address is not the same, sending a third request to use the identified network address corresponding to the lease.

7,539,130	Method and system for transmitting and receiving packets	Nokia Corporation	Le; Khiem | Clanton; Christopher | Zheng; Haihong | Liu; Zhigang	370	H04L	20050411	0	100%	☐

Abstract: The invention is a system and method for synchronizing the transmission of compressed headers in data packets between a transmitter and a receiver having a preferred wireless application which is an improvement of RFC2508. In a system having a transmitter transmitting a plurality of packets each containing a header to a receiver, a method of synchronizing the transmission of compressed headers between the transmitter and receiver in accordance with the invention includes transmitting a current packet from the transmitter to the receiver containing information that the transmitter is prepared to send subsequently transmitted packets in which the headers therein are to be compressed in comparison to the header contained in the current packet; and transmitting from the receiver to the transmitter an acknowledgment packet that the receiver has received the current packet.
MainClaim: A method, comprising: determining, with a counter at a receiver, an elapsed time.t between consecutively received packets; comparing the elapsed time.t between a currently received packet and an immediately previously received packet to determine whether the elapsed time.t is at least equal to a time lapse indicating that at least one packet is missing between the currently received packet and the immediately previously received packet; processing the elapsed time.t indicating that at least one packet is missing to determine a number of missing packets between the immediately previously received packet and the currently received packet; adding the number of missing packets to a packet number of the immediately previously received packet to update a number of the current packet in a sequence of transmission the plurality of packets; and decompressing a compressed header of the current packet using the updated number of the current packet.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

6,882,637	Method and system for transmitting and receiving packets	Nokia Networks Oy	Le; Khiem | Clanton; Christopher Lamonte | Zheng; Haihong | Liu; Zhigang	370	H04J	20000328	0	100%	☐

Abstract: The invention is a system and method for synchronizing the transmission of compressed headers in data packets between a transmitter and a receiver having a preferred wireless application which is an improvement of RFC2508. In a system having a transmitter transmitting a plurality of packets each containing a header to a receiver, a method of synchronizing the transmission of compressed headers between the transmitter and receiver in accordance with the invention includes transmitting a current packet from the transmitter to the receiver containing information that the transmitter is prepared to send subsequently transmitted packets in which the headers therein are to be compressed in comparison to the header contained in the current packet; and transmitting from the receiver to the transmitter an acknowledgment packet that the receiver has received the current packet.
MainClaim: In a system having a transmitter transmitting a plurality of packets each containing a header to a receiver, a method of synchronizing the transmission of compressed headers between the transmitter and receiver comprising:

transmitting a current packet from the transmitter to the receiver containing information that the transmitter is prepared to send subsequently transmitted packets in which the headers therein are to be compressed in comparison to the header contained in the current packet; and

transmitting from the receiver to the transmitter an acknowledgment packet that the receiver has received the current packet.

2006/0155870	Connectionless protocol	Apple Computer Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

	Real time transmission of								

7,600,037	information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	12	92%	☐

Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.
MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

7,013,346	Connectionless protocol	Apple Computer, Inc.	Tucker; Rusty	709	G06F	20001006	6	92%	☐

Abstract: Packets transmitted from a server into a computer network are assigned a sequence number, a retransmit time and a time to live. Each packet is retransmitted upon the expiration of the retransmit time if no acknowledgment has been received from a client to which the packet was sent. The packet is removed from a retransmit buffer if the time to live timer expires prior to any acknowledgment being received. Multiple acknowledgments may be combined into a coalesced acknowledgment.
MainClaim: A method for real time transmission of frame-based content between a network server and a network client comprising the steps of:

designating individual packets of said content as either a frame packet that contains information for reconstructing an entire frame of said content or a differential packet that contains changes to a frame;

assigning to each of said packets a sequence number and a timer for retransmission retention, wherein the duration of the timers for frame packets is longer than for differential packets;

transmitting each of said packets to said network client;

detecting an acknowledgment for one or more packets received at said network client;

retransmitting any of said packets for which no acknowledgment is detected if their respective timers have not expired; and

terminating the retention of each packet whose timer has expired, wherein differential packets are removed more frequently than frame packets in order to ensure that critical information is not lost when an acknowledgment is not detected.

7,028,098	Selective routing of data flows using a TCAM	Nokia, Inc.	Mate; Ashutosh | Mahamuni; Atul | Chander; Vijay	709	G06F	20010720	0	100%	☐

Abstract: The present invention relates to a method and system for supporting in a router a plurality of data flows using a ternary content addressable memory (TCAM) in which the number of accesses to write to the TCAM is optimized to improve efficiency of updating and subsequent look up. To accommodate the plurality of data flows, the TCAM is partitioned into at least two partitions in which a first portion includes indices having a higher priority and a second portion includes indices having a lower priority. For example, multiple protocol label switching (MPLS) flows and IP-Virtual Private Network (VPN) can be added to the first partition and policy based routing flows can be added to the second partition. During subsequent TCAM look-up of a prefix of an incoming packet the MPLS or IP-VPN flow will subsume any matching policy based routing flow, such as flows classified by an access control list or traffic manager flows.
MainClaim: A method for classifying a plurality of data flows in a router comprising the steps of:

partitioning a ternary content addressable memory (TCAM) into at least a first partition and a second partition; said first partition includes indices having highest priority ranging from a lowest index to a partition index and said second partition includes indices having lowest priority ranging from a highest index to said partition index;

loading one or more first flow TCAM entries of a first of said plurality of data flows into said first partition in a predetermined order;

loading one or more second flow TCAM entries of a second of said plurality of data flows into said second partition in a predetermined order;

setting bit values of a corresponding mask for each of said first TCAM entries and said second TCAM entries such that

bits of said respective first TCAM entries and said second TCAM entries are individually masked by said masks; and

comparing a prefix comprising predetermined packet header information of an incoming packet to said loaded one or more first TCAM entries and one or more second TCAM entries such that a matching said one or more first TCAM entries subsumes any matching said one or more second TCAM entries.

2009/0304000	OUTBOUND TRANSMISSION OF PACKET BASED ON ROUTING SEARCH KEY CONSTRUCTED FROM PACKET DESTINATION ADDRESS AND OUTBOUND INTERFACE	Apple Inc.	Masputra; Cahya | Siegmund; Dieter | Lubet; Vincent		H04L	20080930	8	92%	☐

Abstract: A method is described that involves associating an outbound packet with a first network interface and constructing a search key from an identifier of the first network interface and the outbound packet's destination address. The method further entails submitting the search key to a routing function where the routing function identifies the outbound packet's next hop address. The method also involves transmitting the outbound packet to a node identified by the next hop address from the first network interface.
MainClaim: A method, comprising:a) associating an outbound packet with a first network interface;b) constructing a search key from an identifier of said first network interface and said outbound packet's destination address;c) submitting said search key to a routing function, said routing function identifying said outbound packet's next hop address; and,d) transmitting said outbound packet to a node identified by said next hop address from said first network interface.

7,730,294	System for geographically distributed virtual routing	Nokia Corporation	Asnis; James David	713	G06F	20040604	0	100%	☐

Abstract: A system for managing a distributed MetaHop that is administered, managed, and monitored as a single entity. If a new gateway is added to a MetaHop, the gateway can be provisioned with membership credentials by an administrator who indicates relatively basic information for the new gateway to join the MetaHop. Once provisioned with relatively basic information, the new gateway can be shipped to a relatively remote site where it automatically seeks out an entry point to the MetaHop. After connecting to an entry point (or entry points), the new gateway is automatically provisioned with any other information used to join the MetaHop. In one embodiment, the joined gateway is automatically enabled to forward traffic. In another embodiment, a new gateway is disabled for traffic forwarding until the administrator enables it for such forwarding on the MetaHop.
MainClaim: A system, comprising: a geographically distributed virtual internet protocol router that comprises a plurality of gateways each comprising at least one data processor and at least one network interface unit, wherein at least one tunnel is provided for each gateway to communicate with at least one of the other plurality of gateways, and wherein the geographically distributed virtual internet protocol router is configurable to be administered as a single entity, and wherein a temporary tunnel is automatically reconfigured for each tunnel that was previously available to the geographically distributed virtual internet protocol router that becomes unavailable for communication, said automatic reconfiguration comprising reconfiguring the gateways which are part of a reconfiguration temporary tunnel route and without reconfiguring all of said plurality of gateways, where the geographically distributed virtual internet protocol router performs further actions, comprising enabling partial provisioning of geographically distributed virtual internet protocol router information to the new gateway over an internal network, automatically provisioning the remaining geographically distributed virtual internet protocol router information to the new gateway over an external network, and employing the provisioned geographically distributed virtual internet protocol router information to automatically join the new gateway to the geographically distributed virtual internet protocol router over the external network.

2009/0006635	Network management	Apple Inc.	Siegmund; Dieter	709	G06F	20071210	2	93%	☐

Abstract: Systems and methods relating to managing network addresses. In one implementation, a method is provided. The method includes sending a first request to use a particular network address, sending one or more second requests for respective hardware addresses corresponding to network addresses of one or more network address leases. When a hardware address corresponding to a particular network address lease is received in response to one of the one or more second requests and an acknowledgement of the first request to use the network address is not received determining whether the network address identified by the lease is the same as the network address in the first request, and when the network address is not the same, sending a third request to use the identified network address corresponding to the lease.
MainClaim: A method comprising:sending a first request to use a particular network address;sending one or more second requests for respective hardware addresses corresponding to network addresses of one or more network address leases; andwhen a hardware address corresponding to a particular network address lease is received in response to one of the one or more second requests and an acknowledgement of the first request to use the network address is not received:determining whether the network address identified by the lease is the same as the network address in the first request, andwhen the network address is not the same, sending a third request to use the identified network address corresponding to the lease.

7,606,928	Method and device for controlling receiver buffer fullness level in multimedia streaming	Nokia Corporation	Wang; Ru-Shang | Varsa; Viktor | Leon; David | Aksu; Emre Baris | Curcio; Igor Danilo Diego	709	G06F	20030321	0	100%	☐

Abstract: A method to provide to a sender of RTP packets the actual receiver buffer fullness level in a receiver of the RTP packets at a certain time instant represented as remaining playout duration in time. The receiver sends in an RTCP report the sequence number of a selected RTP packet in the receiver buffer and the time difference between the scheduled playout time of this packet and the current time. Based on this timing information, the sender calculates the amount of time it would take for the receiver buffer to empty if the receiver continues to playout at normal speed and no further RTP packets arrive to the receiver buffer. This receiver buffer fullness level information can be used at the sender to adjust the transmission rate and/or nominal playout rate of the RTP packets in order to maintain a targeted receiver buffer fullness level.
MainClaim: A method for adaptively controlling fullness level of a receiver buffer in a streaming client, the streaming client adapted to receive a sequence of packets from a streaming server through a communication link, said method comprising: selecting in the streaming client one of the packets in the sequence to be played out, the selected one packet having a scheduled playout time, wherein the receiver buffer is adapted for storing at least part of the sequence of packets; conveying through the communication link a message from the streaming client to the streaming server including information indicative of the scheduled playout time of the selected packet in the sequence to be played out; and determining in the server the fullness level of the receiver buffer at least partly based on the information for adjusting transmission characteristic in the streaming server, wherein the fullness level is computed based on a sequence number of the selected packet, a time difference between the scheduled playout time of the selected packet and a current time, and the sequence number of a last packet in the sequence to be played out.

2006/0129693	Reliable real-time transport protocol	Apple Computer, Inc.	LeCroy; Chris | Vaughan; Gregory	709	G06F	20060207	2	93%	☐

Abstract: Reliability is added to RTP by having a client acknowledge to the server each of the RTP packets received by the client, and retransmitting from the server to the client any of the packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to the timestamp. The server continuously determines a maximum number of bytes that may be contained in the RTP packets streaming into the network and, in the event a number of bytes in the RTP packets exceeds the maximum number, discontinues streaming of the RTP packets until it is determined that the number of bytes is less than the maximum number. The server also continuously determines a present streaming rate at which the RTP packets are streamed into the network wherein the present streaming rate exceeds the normal streaming rate.
MainClaim: A method of operating a server that transmits a plurality of Real-time Transport Protocol (RTP) packets to clients over a network, comprising the following steps: determining whether each RTP packet sent to a client on the network is acknowledged by said client; re-transmitting any of said RTP packets that remain unacknowledged after a predetermined time duration subsequent to sending said packets; continuously determining a maximum number of bytes that can be contained in RTP packets transmitted over said network, and in the event a number of bytes in RTP packets transmitted by said server exceeds said maximum number, discontinuing transmission of said RTP packets until said determining step indicates said number of bytes is less than said maximum number.

7,380,014	Reliable real-time transport protocol	Apple Inc.	LeCroy; Chris | Vaughan; Gregory	709	G06F	20060207	2	93%	☐

Abstract: Reliability is added to RTP by having a client acknowledge to the server each of the RTP packets received by the client, and retransmitting from the server to the client any of the packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to the timestamp. The server continuously determines a maximum number of bytes that may be contained in the RTP packets streaming into the network and, in the event a number of bytes in the RTP packets exceeds the maximum number, discontinues streaming of the RTP packets until it is determined that the number of bytes is less than the maximum number. The server also continuously determines a present streaming rate at which the RTP packets are streamed into the network wherein the present streaming rate exceeds the normal streaming rate.
MainClaim: A method of operating a server that transmits a plurality of Real-time Transport Protocol (RTP) packets to clients over a network, comprising the following steps: determining whether each RTP packet sent to a client on the network is acknowledged by said client; re-transmitting any of said RTP packets that remain unacknowledged after a predetermined time duration subsequent to sending said packets; continuously determining a maximum number of bytes that can be contained in RTP packets transmitted over said network, and in the event a number of bytes in RTP packets transmitted by said server exceeds said maximum number, discontinuing transmission of said RTP packets until said determining step indicates said number of bytes is less than said maximum number.

7,529,929	System and method for dynamically enforcing digital rights management rules	Nokia Corporation	Asokan; Nadarajah | Ekberg; Jan-Erik | Stenman; Jorma | Teinila; Jaakko	713	H04L	20020530	0	100%	☐

Abstract: A system and method for enforcing digital rights management (DRM) rules in a terminal, even when the requesting rendering application is already operating. Content, which may be encrypted, is received at the terminal and securely stored. On-demand authorization is effected for the rendering application that is requesting access to the content, using secure communications between a DRM engine within the terminal and an operating system within the terminal that is augmented with a security manager adapted to engage in such secure communications. If the rendering application is found to be authorized, the DRM rules are applied to determine whether the rendering application may access the content, and if so, the content is made available to the rendering application.
MainClaim: A processor-implemented method comprising: receiving content and at least one voucher identifying digital rights management (DRM) rules at a terminal that provides on-demand authentication of an operating terminal application which is seeking access to the content via secure communications between a DRM engine and an operating system augmented with a security manager adapted to conduct the secure communications, wherein the terminal application comprises a rendering program running on the operating system concurrently with and independently of the DRM engine, and wherein the terminal application is already running prior to being authenticated; issuing a request to the security manager by the DRM engine to provide a connection to a process whose program text matches a hash provided by the DRM engine, wherein the process corresponds to the terminal application; returning a handle to the connection to the DRM engine; invoking an authentication request at the DRM engine to retrieve at least a portion of program text of the process identified by the handle; receiving the authentication request by the security manager and

identifying the process corresponding to the connection; providing the portion of program text to the DRM engine from the security manager; verifying, by the DRM engine, the legitimacy of the terminal application by verifying a certificate of the terminal application based on the program text; if the terminal application is authenticated, applying the DRM rules to determine whether the terminal application may access the content; and accessing the content by the terminal application if access is allowed in response to applying the DRM rules.

2008/0168568	Token passing technique for media playback devices	Apple Inc.	Brodersen; Rainer | Robbin; Jeffrey | Farrugia; Augustin J. | Schultz; Rod	726	H04L	20070108	6	92%	☐

Abstract: A digital rights management (DRM) system for distribution of digital content such as audio or video uses a token passing scheme to enhance security of the content from unauthorized access and use, including access by unauthorized players. The token is requested from the central content or DRM server by a host device such as a user's computer, using security related information. The token is then passed to a media player associated with the host device, the token being encrypted using a key special to that particular player. Upon receipt of the token, the player transmits back to the server certain related security information confirming receipt of the token and in return receives keys for decryption of the associated digital content. In the absence of proper passing of the token, player access to the content, or further access to other content, is denied. This also allows the player to communicate directly with the server for obtaining the keys.
MainClaim: A computer enabled method for controlling distribution of media content between a source, a host device, and a player associated with the host device, the method comprising the acts of:exchanging authentication data between the player and the host device;transmitting a request for a token from the host device to the source;receiving the token at the host device;sending the token to the player;sending identification data from the player to the host source including the token; andreceiving at the player, in response to the token, at least one key relating to encryption or decryption of the content to be distributed.

2007/0233606	Decoupling rights in a digital content unit from download	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	G06Q	20060404	8	92%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

7,461,259	Method and apparatus to provide secure mobile file system	Nokia Corporation	Lakshmi Narayanan; Ram Gopal	713	H04L	20040630	0	100%	☐

Abstract: In an exemplary embodiment of this invention there is disclosed a mobile wireless terminal (50) that includes a transceiver (52) for coupling the mobile wireless terminal to a wireless network operator (60), a controller (54) and a memory (56). The memory may be assumed to store a file system program (56A) executable by the controller, and to be operable to store a file having a file data portion (14) for containing file data and a data structure, such as a file header (10), having fields for containing values. A plurality of the fields contain a value of a public cryptographic key (24) associated with a file creator, a seed value (26), an encrypted seed value (28) obtained by encrypting the seed value with a private cryptographic key of the file creator, and a file integrity value (30) obtained using the encrypted seed value and the file data. By the use of the preferred embodiments a file can be traced-back though a plurality of file handlers to a creator of the file.
MainClaim: A method comprising: in response to a file creator creating a file, obtaining a seed value; encrypting the seed value using a private cryptographic key associated with the file creator to form an encrypted seed value; storing as part of the file a public cryptographic key associated with the file creator, the seed value and the encrypted seed value; computing a file integrity value using the encrypted seed value and file data; and storing as part of the file the computed file integrity value.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	94%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.

MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

2008/0301435	Peer-to-peer security authentication protocol	Apple Inc.	Simon; Steven Neil	713	H04L	20070529	6	94%	☐

Abstract: A salt transmitted by a second node is received at a first node. The received salt is used to decrypt encrypted data. Optionally, authorization to access a service provided by the second node is received by the first node. In some cases the service includes access to one or more files.
MainClaim: A method of computer security, comprising:receiving at a first node a salt that was transmitted by a second node; andusing the received salt to decrypt encrypted data.

7,540,022	Using one-time passwords with single sign-on authentication	Nokia Corporation	Barari; Tirthankar | Elkun; Leonid | Zaretsky; Elias	726	G06F	20050630	0	100%	☐

Abstract: A method, computer program product, authentication proxy server, and system for enabling a user to use a one-time password in conjunction with single sign-on authentication and external authentication, such as provided by the Kerberos protocol, are provided.
MainClaim: A method comprising: receiving an authentication request, said authentication request including a username and a one time password (OTP) associated with a user; authenticating the OTP using a password authentication server; updating a database with the authenticated OTP, said database including a mapping of a plurality of usernames associated with a plurality of users to a respective password, such that the password mapped to the username associated with the user is the authenticated OTP; permitting the database to be accessible by an authentication server configured to use the password mapped to the username associated with the user in the database; and transmitting the authentication request to the authentication server to provide single sign on (SSO) authentication to the user.

2008/0301435	Peer-to-peer security authentication protocol	Apple Inc.	Simon; Steven Neil	713	H04L	20070529	6	93%	☐

Abstract: A salt transmitted by a second node is received at a first node. The received salt is used to decrypt encrypted data. Optionally, authorization to access a service provided by the second node is received by the first node. In some cases the service includes access to one or more files.
MainClaim: A method of computer security, comprising:receiving at a first node a salt that was transmitted by a second node; andusing the received salt to decrypt encrypted data.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	93%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

7,313,828	Method and apparatus for protecting software against unauthorized use	Nokia Corporation	Holopainen; Yrjo	726	H04L	20010904	0	100%	☐

Abstract: A method and apparatus which protects software against unauthorized use which is bound to at least one certain hardware device. The hardware device includes unique hardware identification sequences like unique hardware numbers/addresses, serial numbers or other embedded hardware characterization sequences. A special license key has

to be passed to the software at the first activation. The license key contains among other things encrypted hardware identification sequences which are compared with the read out sequences of the accessible hardware devices. The use of the software features is permitted if the sequences match.
MainClaim: A method for preventing unauthorized use of software accessing at least one specific hardware module comprising a unique hardware identification sequence wherein said software comprises a license key for being executed, comprising: reading out said hardware identification sequence of said at least one specific hardware module, said reading out being performed at a processing device executing the software; retrieving, at the processing device, a predetermined hardware identification sequence contained in said license key; comparing, at the processing device, said read-out hardware identification sequence with said hardware identification sequence contained in the license key; permitting execution of said software if both sequences match; and wherein said hardware identification sequence contained in said license key is encrypted and a first secret key coded in said software is used to decrypt said hardware identification sequence, wherein at least one of said specific hardware modules is a Bluetooth module comprising a unique Bluetooth hardware address that comprises said hardware identification sequence that is read out, and wherein said first secret key is encrypted additionally using a public key encryption method, comprising: a second secret key which is only known to a trusted third authority; and a public key corresponding to said second secret key; and wherein said second secret key is used for encrypting said first secret key and said public key is used for decrypting said encrypted first secret key and wherein said public key is the only key which allows decrypting data encrypted by the second secret key.

2008/0168568	Token passing technique for media playback devices	Apple Inc.	Brodersen; Rainer | Robbin; Jeffrey | Farrugia; Augustin J. | Schultz; Rod	726	H04L	20070108	6	92%	☐

Abstract: A digital rights management (DRM) system for distribution of digital content such as audio or video uses a token passing scheme to enhance security of the content from unauthorized access and use, including access by unauthorized players. The token is requested from the central content or DRM server by a host device such as a user's computer, using security related information. The token is then passed to a media player associated with the host device, the token being encrypted using a key special to that particular player. Upon receipt of the token, the player transmits back to the server certain related security information confirming receipt of the token and in return receives keys for decryption of the associated digital content. In the absence of proper passing of the token, player access to the content, or further access to other content, is denied. This also allows the player to communicate directly with the server for obtaining the keys.
MainClaim: A computer enabled method for controlling distribution of media content between a source, a host device, and a player associated with the host device, the method comprising the acts of:exchanging authentication data between the player and the host device;transmitting a request for a token from the host device to the source;receiving the token at the host device;sending the token to the player;sending identification data from the player to the host source including the token; andreceiving at the player, in response to the token, at least one key relating to encryption or decryption of the content to be distributed.

2007/0260548	DEVICE-INDEPENDENT MANAGEMENT OF CRYPTOGRAPHIC INFORMATION	Apple Computer, Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois	705	H04L	20060503	6	92%	☐

Abstract: Some embodiments provide an account-based DRM system for distributing content. The system includes several devices that are associated with one particular account. The system also includes a set of DRM computers that receives a request to access a particular piece of content on the devices associated with the particular account. The DRM computer set then generates a several keys for the devices, where each particular key of each particular device allows the particular device to access the particular piece of content on the particular device. Through a network, the DRM computer set of some embodiments sends the particular piece of content and the generated keys to the devices associated with the particular account. The network is a local area network, a wide area network, or a network of networks, such as the Internet. In some of these embodiments, the DRM computer set sends the content and keys to one device (e.g., a computer), which is used to distribute the content and the key(s) to the other devices associated with the account. In some embodiments, the DRM computer set individually encrypts each key in a format that is used during its transport to its associated device and during its use on this device.
MainClaim: A digital rights management (DRM) method for distributing a piece of content to a user, said user having first and second devices for accessing the content, the method comprising: a) sending to the user the piece of content in a protected format; b) from a set of DRM computers, sending to the user a first key that enables the user to access the protected content on the first device; c) from the set of DRM computers, sending to the user a second key that enables the user to access the protected content on the second device.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using

cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

7,382,882	Secure session set up based on the wireless application protocol	Nokia Corporation	Immonen; Olli	380	H04K	19990702	0	100%	☐

Abstract: Method, apparatus, memory card, and system for establishing a secure connection between a wireless communication apparatus and a data communication apparatus based on a wireless application protocol. The wireless communication apparatus is provided with contact means for receiving information from a separate unit provided with memory means. The memory means comprising information to control the access of the wireless communication apparatus through a wireless communication network connected to said data communication apparatus.
MainClaim: A method for establishing a secure connection between a wireless communication apparatus and a data communication apparatus based on a wireless application protocol, wherein the wireless communication apparatus has memory means included within a separate unit comprising information to control the access of the wireless communication apparatus through a wireless communication network connected to the data communication apparatus, comprising: connecting the wireless communication apparatus to the separate unit, accessing the wireless communication network connected to the data communication apparatus; the wireless communication apparatus transmits a request to the data communication apparatus to establish a connection, the request comprising information of which at least one pre-defined algorithm the wireless communication apparatus supports; upon reception of the request, the data communication apparatus chooses at least one algorithm associated with a public and a private key, and transmits a message back to the wireless communication apparatus, the message comprising the public key and information about which algorithm the data communication apparatus has chosen; in response to the message comprising the public key, the wireless communication apparatus generates a master secret code and calculates a signature based on the chosen algorithm, the public key and the master secret code, and transmits a response to the data communication apparatus, the response comprising the calculated signature; upon reception of the response comprising the signature, the data communication apparatus calculates the master secret code based on the chosen algorithm, the signature received and the private key, and establishes a secure connection to the wireless communication apparatus, and saves the master secret code on the memory in order to re-establish the connection between the wireless communication apparatus and the separate unit at a later occasion.

7,424,615	Mutually authenticated secure key exchange (MASKE)	Apple Inc.	Jalbert; Christopher P. | Wallace; Leland A. | O'Rourke; David M.	713	H04L	20010730	3	94%	☐

Abstract: The invention provides a cryptographic method which includes receiving at a first entity a second public key M_A. At least one of a first session key K_B and a first secret S_B may be generated based on the second public key M_A. A first random nonce N_B may be generated which may be encrypted with at least one of the first session key K_B and the first secret S_B to obtain an encrypted random nonce. The encrypted random nonce may be transmitted from the first entity. In response to transmitting the encrypted random nonce, the first computer may receive a data signal containing a modification of the first random nonce N_B+1. If the modification of the first random nonce N_B+1 was correctly performed, then at least one of (i) opening a communication link at the first computer, and (ii) generating a first initialization vector I_B is performed.
MainClaim: A cryptographic method, including: generating, at a first entity, a first public key M_B, the first public key M_B being session specific; receiving from a second entity, at the first entity, a second public key M_A, the second public key M_A being session specific; generating, at the first entity, a first secret S_B by hashing one or more parameters that are known to the first entity and the second entity, at least one of the parameters being a result of hashing one or more of the following: a first password P_B, the first public key M_B, and the second public key M_A; generating, at the first entity, a first session key K_B, the first session key K_B being different from the first secret S_B, both the first session key K_B and the first secret S_B being computed from the second public key M_A; encrypting, at the first entity, a first random nonce N_B with the first session key K_B or the first secret S_B to obtain a first encrypted result; encrypting, at the first entity, the first encrypted result with the other one of the first session key K_B or the first secret S_B to obtain an encrypted random nonce; transmitting the encrypted random nonce from the first entity to the second entity; receiving a response to the encrypted random nonce; and authenticating through determining whether the response includes a correct modification of the first random nonce N_B.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central

server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

7,596,223	User control of a secure wireless computer network	Apple Inc.	Vogel, III; "J" Leslie	380	H04L	20000912	1	92%	☐

Abstract: A wireless network is established between a station and an access point for the network using a sequence of messages that securely transmit authentication information from the station to the access point for validation by the access point, and subsequently transmit a shared key necessary to establish the wireless network from the access point to the station when the station is validated.
MainClaim: A computerized method of establishing a secure wireless communication channel between an access point and a station, the channel being encrypted with a channel key, the method comprising: the access point receiving a connection request from the station to initiate a setup connection between the access point and the station; the access point sending a shared key to the station in response to the connection request if the access point is capable of handling a connection to the station; the access point selecting a secret access point key subsequent to sending the shared key; the access point generating a self-distributed key using the secret access point key; the access point generating a first value using the secret access point key and a second value from the station, wherein the second value has been generated by the station using a secret station key; the access point sending the first value to the station, wherein the station uses the first value and the secret station key to calculate the self-distributed key; the access point receiving an encrypted user name and an encrypted password from the station, wherein the station has encrypted the user name and the password with the self-distributed key; and the access point decrypting the user name and the password to check for validity; the access point encrypting the channel key using the self-distributed key if the user name and the password are valid; and the access point sending the encrypted channel key to the station to cause the station to terminate the setup connection and to establish a secured connection with the access point using the channel key.

7,224,805	Consumption of content	Nokia Corporation	Hurst; Leon | Durand; Julian | Wilkinson; Jeffrey Miles | Michael; Mulligan	380	H04L	20011228	0	100%	☐

Abstract: A method and apparatus for consumption of content (1) is described in which a licensor is able to exercise control over consumption based on a personal identity in the form of a set of binding attributes (15). The control may be exercised for a number of consuming terminals (19) including rendering machines such as portable video and audio players.
MainClaim: A method of decrypting encrypted content stored on a terminal, the method comprising the steps of: receiving a request to access encrypted content on a terminal; obtaining a license comprising a content decryption key and a set of binding attributes, the attributes including a public key of an authorized user of the encrypted content; in response to the request, polling a personal trusted device of said user to digitally sign data with a private key associated with the device; receiving said digitally signed data from said device; verifying at the terminal the digitally signed data utilizing the public key; and wherein the terminal in response to verification of the digitally signed data uses the content decryption key to decrypt the encrypted content; following said step of receiving said digitally signed data, applying a hashing algorithm to said data and decrypting said digitally signed data; and comparing results of said application of said hashing algorithm with said decrypted data in said step of verifying.

2008/0168568	Token passing technique for media playback devices	Apple Inc.	Brodersen; Rainer | Robbin; Jeffrey | Farrugia; Augustin J. | Schultz; Rod	726	H04L	20070108	6	97%	☐

Abstract: A digital rights management (DRM) system for distribution of digital content such as audio or video uses a token passing scheme to enhance security of the content from unauthorized access and use, including access by unauthorized players. The token is requested from the central content or DRM server by a host device such as a user's computer, using security related information. The token is then passed to a media player associated with the host device, the token being encrypted using a key special to that particular player. Upon receipt of the token, the player transmits back to the server certain related security information confirming receipt of the token and in return receives keys for decryption of the associated digital content. In the absence of proper passing of the token, player access to the content, or further access to other content, is denied. This also allows the player to communicate directly with the server for obtaining the keys.
MainClaim: A computer enabled method for controlling distribution of media content between a source, a host device, and a player associated with the host device, the method comprising the acts of:exchanging authentication data between the player and the host device;transmitting a request for a token from the host device to the source;receiving the token at the host device;sending the token to the player;sending identification data from the player to the host source including the token; andreceiving at the player, in response to the token, at least one key relating to encryption or decryption of the content to be distributed.

2007/0260548	DEVICE-INDEPENDENT MANAGEMENT OF CRYPTOGRAPHIC INFORMATION	Apple Computer, Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois	705	H04L	20060503	6	96%	☐

Abstract: Some embodiments provide an account-based DRM system for distributing content. The system includes several devices that are associated with one particular account. The system also includes a set of DRM computers that receives a request to access a particular piece of content on the devices associated with the particular account. The DRM computer set then generates a several keys for the devices, where each particular key of each particular device allows the particular device to access the particular piece of content on the particular device. Through a network, the DRM computer set of some embodiments sends the particular piece of content and the generated keys to the devices associated with the particular account. The network is a local area network, a wide area network, or a network of networks, such as the Internet. In some of these embodiments, the DRM computer set sends the content and keys to one device (e.g., a computer), which is used to distribute the content and the key(s) to the other devices associated with the account. In some embodiments, the DRM computer set individually encrypts each key in a format that is used during its transport to its associated device and during its use on this device.
MainClaim: A digital rights management (DRM) method for distributing a piece of content to a user, said user having first and second devices for accessing the content, the method comprising: a) sending to the user the piece of content in a protected format; b) from a set of DRM computers, sending to the user a first key that enables the user to access the protected content on the first device; c) from the set of DRM computers, sending to the user a second key that enables the user to access the protected content on the second device.

2007/0233606	Decoupling rights in a digital content unit from download	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	G06Q	20060404	8	96%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

7,343,014	Method for sharing the authorization to use specific resources	Nokia Corporation	Sovio; Sampo | Asokan; Nadarajah | Nyberg; Kaisa | Niemi; Valtteri	380	H04L	20030715	0	100%	☐

Abstract: The invention relates to a method for sharing the authorization to use specific resources among multiple devices, which resources are accessible via messages on which a secret key operation was applied with a predetermined secret master key d available at a master device 11. In order to provide an optimized sharing of authorization, it is proposed that the master device 11 splits the secret master key d into two parts d_1, d_2. A piece of information relating to the first part d_1 of the secret master key d is forwarded to the slave device 13 for enabling this slave device to perform a partial secret key operation on a message m. The second part d_2 of the secret master key d is forwarded to a server 12 for enabling the server 12 to perform partial secret key operations on a message m received from the slave device 13.
MainClaim: A method comprising: generating at a master device a first part and a second part of a predetermined secret master key, said predetermined secret master key being available at said master device and said first part and said second part being combinable to said secret master key, wherein resources are accessible via messages on which a secret key operation was applied with said secret master key and wherein said master device is acting as a delegator of an authorization to use said specific resources; forwarding a piece of information to a slave device acting as a delegatee of said authorization, which piece of information enables said slave device to perform a partial secret key operation on messages based on said first part of said secret master key; and forwarding said second part of said secret master key to a server for enabling said server to perform a partial secret key operation on messages received from said slave device based on said second part of said secret master key.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	95%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and

server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

2005/0198489	Server computer issued credential authentication	Apple Computer, Inc.	Wallace, Leland A. | O'Rourke, David M.	713	G06F	20031224	5	95%	☐

Abstract: A method for authenticating computers is disclosed. The method comprises issuing a credential from a first computer to a second computer. When the second computer authenticates to the first computer, the second computer transmits the credential and a first challenge to the first computer. The first computer determines whether the credential is valid, computes a first response to the first challenge, and generates a second challenge. The first computer transmits the first response and the second challenge to the second computer. The second computer determines whether the first response is valid and computes a second response to the second challenge. The second computer transmits the second response to the first computer in order to verify and authenticate the computers.
MainClaim: A method for authenticating a computer, the method comprising the following steps: issuing a credential from a first computer to a second computer; transmitting said credential and a computer challenge from the second computer to the first computer when the second computer is to be authenticated; transmitting a response to said computer challenge from said first computer to said second computer; and verifying said response with said second computer in order to authenticate and verify said computers.

7,395,049	Security element commanding method and mobile terminal	Nokia Corporation	Piikivi; Lauri	455	H04M	20040302	0	100%	☐

Abstract: The invention relates to a method for commanding a security element of a mobile terminal, and to a mobile terminal. An installed application of the mobile terminal issues a command to a platform library of the mobile terminal. Then the platform library reads information from an access control file of the security element. After this, the platform library obtains an access code for the security element from a user according to the access control file information, and inputs the obtained access code and the command to the security element. An action is performed according to the command in the security element, if the access code is approved by the security element.
MainClaim: A method for commanding a security element of a mobile terminal, the method comprising: issuing a command to a platform library of the mobile terminal by an installed application of the mobile terminal; reading information from an access control file of the security element by the platform library; obtaining an access code for the security element from a user according to the access control file information by the platform library; inputting the obtained access code and the command to the security element by the platform library; and performing an action according to the command in the security element, if the access code is approved by the security element.

2009/0249071	MANAGING CODE ENTITLEMENTS FOR SOFTWARE DEVELOPERS IN SECURE OPERATING ENVIRONMENTS	APPLE INC.	De Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	713	H04L	20090304	3	92%	☐

Abstract: Systems and methods for managing access to restricted data and system resources in secure operating environments are disclosed. Developer access profiles are issued by trusted authorities to developers which define entitlements that provide limited access to system resources and data on specified computing devices. The developer access profiles allow software developers to write software which accesses parts of the target platform environment which are typically off limits to third party developers.
MainClaim: A computer-implemented method of generating a developer access profile, said method comprising:receiving a developer identifier, a device identifier indicative of a developer computing device, and a requested entitlement related to the developer computing device;generating entitlement data based at least in part on the requested entitlement;digitally signing the developer identifier, the device identifier, and the generated entitlement data using a trusted authority private key; andtransmitting the digitally signed data to a developer.

7,178,041	Method, system and computer program product for a trusted counter in an external security element for securing a personal communication device	Nokia Corporation	Asokan; Nadarajah | Ekberg; Jan-Erik | Paatero; Lauri	713	H04L	20020116	0	100%	☐

Abstract: Method, system and computer program product for implementing a trusted counter in a personal communication device. In particular, the method, system and computer program product utilizes cryptography and an external, read-write storage device that stores important state information that cannot be modified without detection. Using the present invention, the counter can be implemented in a personal even if state information is stored in an insecure storage device.
MainClaim: A system for implementing a trusted counter in a personal communication device, comprising: a secure module in a personal communication device comprising a first read-only, tamper resistant storage device, said personal communication device containing no writable storage; a second read-write, tamper resistant storage device in an electronic card removable from the personal communication device; a third read-write, insecure storage device in the

removable electronic card; and a processor in communication with the secure module, the second and the third storage devices configured to: execute authentication of the second storage device by the secure module; issue a create counter request by the secure module to the second storage device; send a unique ID identifying a current counter value from the second storage device to the secure module; compute an encrypted envelope of the unique ID with the secured module by applying a cryptographic transform to the unique ID; and write a state value and the encrypted envelope of the unique ID to the third storage device.

2005/0198489	Server computer issued credential authentication	Apple Computer, Inc.	Wallace, Leland A. | O'Rourke, David M.	713	G06F	20031224	5	94%	☐

Abstract: A method for authenticating computers is disclosed. The method comprises issuing a credential from a first computer to a second computer. When the second computer authenticates to the first computer, the second computer transmits the credential and a first challenge to the first computer. The first computer determines whether the credential is valid, computes a first response to the first challenge, and generates a second challenge. The first computer transmits the first response and the second challenge to the second computer. The second computer determines whether the first response is valid and computes a second response to the second challenge. The second computer transmits the second response to the first computer in order to verify and authenticate the computers.
MainClaim: A method for authenticating a computer, the method comprising the following steps: issuing a credential from a first computer to a second computer; transmitting said credential and a computer challenge from the second computer to the first computer when the second computer is to be authenticated; transmitting a response to said computer challenge from said first computer to said second computer; and verifying said response with said second computer in order to authenticate and verify said computers.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	93%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

7,472,273	Authentication in data communication	Nokia Corporation	Haverinen; Henry	713	H04L	20011221	0	100%	☐

Abstract: Method of authenticating a client comprising the steps of sending a subscriber identity to an authentication server; obtaining at least one challenge and at least one first secret to the authentication server based on a client's secret specific to the client; forming first credentials; forming a first authentication key using the at least one first secret; encrypting the first credentials using the first authentication key; sending the at least one challenge and the encrypted first credentials to the client; forming an own version of the first authentication key at the client; decrypting the encrypted first credentials using the own version of the first authentication key. In the method, the encrypted credentials are sent together with the at least one challenge to the client so that the client can proceed authentication only if it can derive the first secret from the at least one challenge.
MainClaim: Method of authenticating a client, comprising: sending client identity information to an authentication server; obtaining at least one challenge and at least one first secret for the authentication server based on a client's secret specific to the client; forming first credentials; forming a first instance of a first authentication key-using the at least one first secret; encrypting the first credentials using the first instance of the first authentication key independent of the authentication server receiving any response based on the client's secret from the client; sending the at least one challenge and the encrypted first credentials to the client; forming a second instance of the first authentication key at the client based on the client's secret and on the at least one challenge; and decrypting the encrypted first credentials using the second instance of the first authentication key at the client.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server

communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

7,448,080	Method for implementing secure corporate communication	Nokia, Inc.	Karjala; Jari | Palojarvi; Jari	726	H04L	20030630	0	100%	☐

Abstract: A mobile or other device connects to a server via a publicly accessible network such as the Internet. After installation upon the device, a virtual private network (VPN) client connects to the server and downloads a VPN profile. In one embodiment the device creates public/private key pairs and requests enrollment of a digital certificate. In another embodiment a digital certificate and public/private key pairs are provided. The device also receives a digital certificate from the server and verifies the server certificate by requesting the user to supply a portion of a fingerprint for the certificate. The invention further includes an automatic content updating (ACU) client that downloads a user profile for the VPN, requests certificate enrollment, and updates the VPN client and other applications when new content is available. A security service manager (SSM) server includes, or is in communication with, a Web server, multiple databases, an enrollment gateway and an internal certification authority (CA). A VPN policy manager application creates and manages VPN profiles and/or policies and communicates with the SSM server. The SSM server, which may reside on an enterprise intranet, may further communicate with one or more external CAs.
MainClaim: A method comprising: (a) initiating a connection via a publicly accessible network from a wireless device, wherein the wireless device includes an unprovisioned virtual private network (VPN) program and an unprovisioned automatic content updating (ACU) program, and the ACU program is configured, upon provisioning, to communicate with one or more remotely-located devices on behalf of at least one additional program that is distinct from the ACU and VPN programs; (b) prior to step (c), validating and storing a returned certificate corresponding to one of the one or more remotely-located devices so as to create a trust relationship with that remotely-located device, wherein said validating and storing includes requiring input of multiple characters from a user of the wireless devices, wherein the multiple characters are a portion of an identifier for the certificate corresponding to one of the one or more remotely-located devices; (c) receiving, in the wireless device and using the connection, information for provisioning the ACU program; (d) provisioning the ACU program based upon the information received in step (c); (e) receiving in the wireless device, via the publicly accessible network and using the provisioned ACU program, information for provisioning the VPN program; (f) provisioning the VPN program based upon the information received in step (e); and (g) creating a secure communication link using the provisioned VPN program.

2008/0301435	Peer-to-peer security authentication protocol	Apple Inc.	Simon; Steven Neil	713	H04L	20070529	6	92%	☐

Abstract: A salt transmitted by a second node is received at a first node. The received salt is used to decrypt encrypted data. Optionally, authorization to access a service provided by the second node is received by the first node. In some cases the service includes access to one or more files.
MainClaim: A method of computer security, comprising:receiving at a first node a salt that was transmitted by a second node; andusing the received salt to decrypt encrypted data.

7,444,508	Method of implementing secure access	Nokia Corporation	Karjala; Jari | Palojarvi; Jari	713	H04L	20030630	0	100%	☐

Abstract: A mobile or other device connects to a server via a publicly accessible network such as the Internet. After installation upon the device, a virtual private network (VPN) client connects to the server and downloads a VPN profile. In one embodiment the device creates public/private key pairs and requests enrollment of a digital certificate. In another embodiment a digital certificate and public/private key pairs are provided. The device also receives a digital certificate from the server and verifies the server certificate by requesting the user to supply a portion of a fingerprint for the certificate. The invention further includes an automatic content updating (ACU) client that downloads a user profile for the VPN, requests certificate enrollment, and updates the VPN client and other applications when new content is available. A security service manager (SSM) server includes, or is in communication with, a Web server, multiple databases, an enrollment gateway and an internal certification authority (CA). A VPN policy manager application creates and manages VPN profiles and/or policies and communicates with the SSM server. The SSM server, which may reside on an enterprise intranet, may further communicate with one or more external CAs.
MainClaim: A method for comprising: (a) connecting a user device via a publicly-accessible network to a server; (b) receiving a certificate; (c) calculating an identifier of the received certificate and converting it to a character string; (d) modifying the string by removing at least one random character from the string; (e) displaying the modified string; (f) receiving, from a user input corresponding to the at least one removed character; and (g) continuing connection to the server only if the user input matches the at least one removed character.

2008/0301435	Peer-to-peer security authentication	Apple Inc.	Simon; Steven Neil	713	H04L	20070529	6	92%	☐

	protocol								

Abstract: A salt transmitted by a second node is received at a first node. The received salt is used to decrypt encrypted data. Optionally, authorization to access a service provided by the second node is received by the first node. In some cases the service includes access to one or more files.
MainClaim: A method of computer security, comprising:receiving at a first node a salt that was transmitted by a second node; andusing the received salt to decrypt encrypted data.

7,321,970	Method and system for authentication using infrastructureless certificates	Nokia Siemens Networks Oy	Watkins; Craig R. | Barrett; Jeremey | Cain; Adam	713	H04L	20031230	0	100%	☐

Abstract: Methods and systems are directed to authenticating a client over a network. The client generates a certificate and sends it to a server through a trusted mechanism. The server is configured to store the received certificate. When the client requests authentication over the network, it provides the certificate again, along with a parameter associated with a secure session. The server verifies the parameter associated with the secure session and determines if the certificate is substantially the same as the stored certificate. The server authenticates the client over the network, if the certificate is determined to be stored. In another embodiment, the client transmits the certificate that is generated by a third party Certificate Authority (CA) based, in part, on the client's public key.
MainClaim: A method for authenticating a client over a network, comprising: generating a first certificate; sending the first certificate to a server, wherein the server is configured to store the first certificate; requesting a second certificate if authentication over the network is requested; sending the second certificate to the server over the network; comparing the second certificate to the first certificate at the server, and if the second certificate and the first certificate are substantially the same, authenticating the client.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

2008/0301435	Peer-to-peer security authentication protocol	Apple Inc.	Simon; Steven Neil	713	H04L	20070529	6	92%	☐

Abstract: A salt transmitted by a second node is received at a first node. The received salt is used to decrypt encrypted data. Optionally, authorization to access a service provided by the second node is received by the first node. In some cases the service includes access to one or more files.
MainClaim: A method of computer security, comprising:receiving at a first node a salt that was transmitted by a second node; andusing the received salt to decrypt encrypted data.

6,988,204	System and method for key distribution and network connectivity	Nokia Corporation	Alve; Jukka | Kangas; Mauri	713	G06F	20020416	0	100%	☐

Abstract: Systems and methods for distributing keys of the sort used for purposes including logging onto computer networks, accessing authorized domains, and accessing persistently-protected data. Also discussed is a smart card that offers network connectivity to a media device.
MainClaim: A method for distributing access keys to one or more media devices, comprising:

selecting a media device;

selecting an access key stored on a smart card;

determining the conditions for distribution of the selected access key from said smart card to the selected media device, and if the conditions are met:

receiving at said smart card a public key relating to the selected media device;

having said smart card create an encrypted copy of the selected access key, the encryption being performed according to said public key;

having said smart card dispatch said encrypted copy to the selected media device; and

having said smart card decrement an incorporated counter, the value of said counter specifying how many more copies of the selected access key the smart card is permitted to distribute, wherein the smart card is capable of distributing more than one copy of the selected access key.

2010/0075604	ACCESSORY DEVICE AUTHENTICATION	Apple Inc.	Lydon; Gregory T. | Schubert; Emily Clark	455	G06F	20090909	1	93%	☐

Abstract: An authentication controller coupled to a first communication port of a portable computing device is allowed to provide authentication on behalf of an accessory device coupled to a second communication port of the portable computing device. In one embodiment, a dongle that includes an authentication controller can be coupled with the portable computing device. Accessory devices can also be coupled with the potable computing device through other ports, including wireless ports. The dongle can provide cross-transport authentication for accessories that do not include authentication controllers. Once the dongle had been properly authenticated, the permissions granted to the dongle port can be transferred to a communication port coupled with an accessory.
MainClaim: A method for authenticating an accessory device at a mobile computing device, the method comprising:receiving an indication that the accessory is coupled with a first port of the mobile computing device;receiving an indication that an authentication device is coupled with a second port of the mobile computing device;receiving a cross-transport authentication request from the authentication device via the second port;authenticating the second port with the authentication device, wherein the authentication grants a set of permissions for communication via the second port when the authentication is successful;transferring at least a subset of the set of permissions granted to the second port during the authentication to the first port; andthereafter, communicating with the accessory through the first port according to the transferred permissions.

7,366,905	Method and system for user generated keys and certificates	Nokia Corporation	Paatero; Lauri	713	H04L	20020228	0	100%	☐

Abstract: A method and system to allow user generation of a private-public key pair and an associated user generated certificate to establish the identity of a user based upon signing the user generated certificate with a private key of a private-public key pair associated with a certificate issued by a Certification Authority (CA). The user generated certificate thereby allows the user that generated the certificate to establish a secure session with a third party without multiple use of the certificate issued by the CA, typically for use on another network infrastructure. The method and system are particularly useful for establishing a secure session, such as a Secure Socket Layer session using a personal computer, where the CA certificate is associated with a wireless identity module of a wireless device.
MainClaim: A method comprising: having an identity authenticated in a first system; a second system causing a key to be generated for use in the second system; the second system generating a certificate for the key; and establishing the identity of a user in the second system by signing the certificate for the key using the authenticated identity of the user in the first system, wherein the certificate for the key for use in the second system contains usage limitations, including a temporal limit on usage, wherein the temporal limit requires that once a secure socket layer session on the second system is completed, the certificate or a corresponding key is destroyed, wherein said usage limitations also include a limit on use of said key for encryption only, which excludes use of said key for signature verification; and wherein the first system is a wireless communication system and wherein the second system is a computer connected to an Internet.

2005/0198489	Server computer issued credential authentication	Apple Computer, Inc.	Wallace, Leland A. | O'Rourke, David M.	713	G06F	20031224	5	95%	☐

Abstract: A method for authenticating computers is disclosed. The method comprises issuing a credential from a first computer to a second computer. When the second computer authenticates to the first computer, the second computer transmits the credential and a first challenge to the first computer. The first computer determines whether the credential is valid, computes a first response to the first challenge, and generates a second challenge. The first computer transmits the first response and the second challenge to the second computer. The second computer determines whether the first response is valid and computes a second response to the second challenge. The second computer transmits the second response to the first computer in order to verify and authenticate the computers.
MainClaim: A method for authenticating a computer, the method comprising the following steps: issuing a credential from a first computer to a second computer; transmitting said credential and a computer challenge from the second computer to the first computer when the second computer is to be authenticated; transmitting a response to said computer challenge from said first computer to said second computer; and verifying said response with said second computer in order to authenticate and verify said computers.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	94%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server

communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

2008/0301435	Peer-to-peer security authentication protocol	Apple Inc.	Simon; Steven Neil	713	H04L	20070529	6	92%	☐

Abstract: A salt transmitted by a second node is received at a first node. The received salt is used to decrypt encrypted data. Optionally, authorization to access a service provided by the second node is received by the first node. In some cases the service includes access to one or more files.
MainClaim: A method of computer security, comprising:receiving at a first node a salt that was transmitted by a second node; andusing the received salt to decrypt encrypted data.

7,207,060	Method, system and computer program product for secure ticketing in a communications device	Nokia Corporation	Immonen; Olli | Asokan; Nadarajah | Markkanen; Panu S.	726	G06F	20020122	0	100%	☐

Abstract: Method, system and computer program product for secure ticketing in a communications device. In particular, the method, system and computer program product utilizes cryptography and an external, read-write security element to securely transmit and store critical data utilized by users of a communications device. Using the present invention, third-parties can prevent the fraudulent use of third-party services without detection.
MainClaim: A system for secure ticketing in a communications device, comprising: a mobile equipment that includes a first storage device; a security element that includes a second storage device; at least one third-party device; and a processor in communication with said first storage device, said second storage device and said third-party device configured to: authenticate said security element; create and initiate at least one counter stored in said second storage device in said secure element by sending a request from said mobile equipment to create a counter in the security element and creating said counter in said security element by giving a unique counter ID and initializing a value in the counter; receive at least one electronic ticket from said third-party device and storing said at least one electronic ticket in said first storage device; redeem said at least one electronic ticket stored in said first storage device with said at least one third-party device; and update a counter value for the counter in said second storage device to correspond to the redemption of said electronic ticket with said third-party device.

2005/0198489	Server computer issued credential authentication	Apple Computer, Inc.	Wallace, Leland A. | O'Rourke, David M.	713	G06F	20031224	5	93%	☐

Abstract: A method for authenticating computers is disclosed. The method comprises issuing a credential from a first computer to a second computer. When the second computer authenticates to the first computer, the second computer transmits the credential and a first challenge to the first computer. The first computer determines whether the credential is valid, computes a first response to the first challenge, and generates a second challenge. The first computer transmits the first response and the second challenge to the second computer. The second computer determines whether the first response is valid and computes a second response to the second challenge. The second computer transmits the second response to the first computer in order to verify and authenticate the computers.
MainClaim: A method for authenticating a computer, the method comprising the following steps: issuing a credential from a first computer to a second computer; transmitting said credential and a computer challenge from the second computer to the first computer when the second computer is to be authenticated; transmitting a response to said computer challenge from said first computer to said second computer; and verifying said response with said second computer in order to authenticate and verify said computers.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and

server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

2008/0168568	Token passing technique for media playback devices	Apple Inc.	Brodersen; Rainer | Robbin; Jeffrey | Farrugia; Augustin J. | Schultz; Rod	726	H04L	20070108	6	92%	☐

Abstract: A digital rights management (DRM) system for distribution of digital content such as audio or video uses a token passing scheme to enhance security of the content from unauthorized access and use, including access by unauthorized players. The token is requested from the central content or DRM server by a host device such as a user's computer, using security related information. The token is then passed to a media player associated with the host device, the token being encrypted using a key special to that particular player. Upon receipt of the token, the player transmits back to the server certain related security information confirming receipt of the token and in return receives keys for decryption of the associated digital content. In the absence of proper passing of the token, player access to the content, or further access to other content, is denied. This also allows the player to communicate directly with the server for obtaining the keys.
MainClaim: A computer enabled method for controlling distribution of media content between a source, a host device, and a player associated with the host device, the method comprising the acts of:exchanging authentication data between the player and the host device;transmitting a request for a token from the host device to the source;receiving the token at the host device;sending the token to the player;sending identification data from the player to the host source including the token; andreceiving at the player, in response to the token, at least one key relating to encryption or decryption of the content to be distributed.

7,634,807	System and method to establish and maintain conditional trust by stating signal of distrust	Nokia Corporation	Yan; Zheng | Cofta; Piotr Leon	726	G08B	20030808	0	100%	☐

Abstract: A system and method is provided that establishes and maintains conditional trust by stating a signal of distrust from a trustee's computing platform to a trustor's computing platform. The trustor attests a trustee at a given time and also sends trust conditions to the trustee upon which the trustor trusts the trustee for some intended purpose. The trust conditions may include restrictions on hardware or software components and any status changes to the hardware or software components. The trustee then monitors the hardware and software components in relation to the trust conditions and reports distrust signals when the trustee's hardware and software configuration no longer matches the trust conditions.
MainClaim: A method, comprising: receiving, at a trustee via a computer network, metrics generated by a trustor that represent a pre-defined trust condition between the trustor and the trustee; establishing a trust relationship between the trustee and the trustor via the computer network based on the pre-defined trust condition; while the trust relationship is in force in a currently running state of the trustee and the trustor, comparing the generated metrics to current metrics of the trustee in response to an event detected internally within the trustee that changes the pre-defined trust condition; and issuing a distrust signal via the computer network by the trustee in response to a mismatch between the generated metrics of the trustor and the current metrics of the trustee, wherein the distrust signal indicates to the trustor that the trust relationship is no longer valid.

2009/0249071	MANAGING CODE ENTITLEMENTS FOR SOFTWARE DEVELOPERS IN SECURE OPERATING ENVIRONMENTS	APPLE INC.	De Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	713	H04L	20090304	3	93%	☐

Abstract: Systems and methods for managing access to restricted data and system resources in secure operating environments are disclosed. Developer access profiles are issued by trusted authorities to developers which define entitlements that provide limited access to system resources and data on specified computing devices. The developer access profiles allow software developers to write software which accesses parts of the target platform environment which are typically off limits to third party developers.
MainClaim: A computer-implemented method of generating a developer access profile, said method comprising:receiving a developer identifier, a device identifier indicative of a developer computing device, and a requested entitlement related to the developer computing device;generating entitlement data based at least in part on the requested entitlement;digitally signing the developer identifier, the device identifier, and the generated entitlement data using a trusted authority private key; andtransmitting the digitally signed data to a developer.

2009/0249075	SYSTEM AND METHOD OF AUTHORIZING EXECUTION OF SOFTWARE CODE IN A DEVICE BASED ON ENTITLEMENTS GRANTED TO A CARRIER	APPLE INC.	De Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	713	H04L	20090304	1	93%	☐

Abstract: Embodiments include systems and methods for authorizing software code to be executed or access capabilities in secure operating environments based on at least one carrier profile. Carrier profiles may be issued by trusted entities to extend trust to other entities to allow those other entities to provide or control execution of applications in a secure operating environment such as on particular computing devices. The carrier profiles allow entities to add software code to a device without reauthorizing each distribution by the trusted authority, or to limited groups of devices controlled or authorized by the other entities.
MainClaim: A method of authorizing software, the method comprising:receiving, in a trusted space of a processor, a request to execute a software module stored on the electronic device;communicating data indicative of the software module to a service executing in an untrusted space of the processor;authenticating at least one profile of a service provider associated with the device by the service;authenticating at least one entitlement of the software module by the service, wherein authenticating the at least one entitlement is based at least in part on the profile of the service provider;communicating data indicative of the authenticated entitlement to the trusted space; andexecuting the software module based on the entitlement.

2009/0249065	SYSTEM AND METHOD OF AUTHORIZING EXECUTION OF SOFTWARE CODE BASED ON AT LEAST ONE INSTALLED PROFILE	Apple Inc.	De Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	713	H04L	20090304	1	93%	☐

Abstract: Embodiments include systems and methods for authorizing software code to be executed or access capabilities in secure operating environments. Profiles may be issued by trusted entities to extend trust to other entities to allow those other entities to provide or control execution of applications in a secure operating environment such as on particular computing devices. The profiles allow entities to add software code to the device without reauthorizing each distribution by a trusted authority such as testing, quality assurance, or to limited groups of devices controlled or authorized by the other entities.
MainClaim: A computerized method of authorizing software, the method comprising:receiving, in a trusted space of a processor, a request to execute a software module stored on the electronic device;communicating data indicative of the software module to a service executing in an untrusted space of the processor;authenticating at least one entitlement of the software module by the service;communicating data indicative of the authenticated entitlement to the trusted space; andexecuting the software module based on the entitlement.

7,707,412	Linked authentication protocols	Nokia Corporation	Nyberg; Kaisa | Niemi; Valtteri | Asokan; Nadarajah	713	H04L	20021125	0	100%	☐
2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

7,487,363	System and method for controlled copying and moving of content between devices and domains based on conditional encryption of content key depending on usage	Nokia Corporation	Alve; Jukka | Chiu; Peter K. | Yan; Zheng | Hietasarka; Juha	713	H04L	20011018	0	100%	☐

Abstract: A system and method is disclosed for allowing content providers to protect against widespread copying of their content, while enabling them to give their customers more freedom in the way they use the content. In accordance with one embodiment, content providers identify their content as protected by watermarking the content. Consumers use compliant devices to access protected content. All of a user's compliant devices, or all of a family's devices, can be

organized into an authorized domain. This authorized domain is used by content providers to create a logical boundary in which they can allow users increased freedom to use their content.
MainClaim: A method of moving protected content within an authorized domain comprising: transmitting encrypted content and a voucher associated with said encrypted content from a first device in the authorized domain to a second device in the authorized domain; the voucher including an encrypted content key and a usage state record, wherein the usage stage record enforces play limits; at the first device rendering any vouchers associated with said encrypted content unusable, wherein all devices in the authorized domain have ability to decrypt the encrypted content key, and wherein said all devices are devices of one or more of a user and a family.

2007/0233606	Decoupling rights in a digital content unit from download	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	G06Q	20060404	8	97%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

2007/0233602	DECOUPLING RIGHTS IN A DIGITAL CONTENT UNIT FROM DOWNLOAD	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	H04L	20061018	6	96%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for providing access to a digital content unit, comprising the operations of: determining if the digital content unit is authorized; in the event the digital content unit is authorized, presenting a first content of the digital content unit; and in the event the digital content unit is not authorized, presenting a second content of the digital content unit.

2008/0168568	Token passing technique for media playback devices	Apple Inc.	Brodersen; Rainer | Robbin; Jeffrey | Farrugia; Augustin J. | Schultz; Rod	726	H04L	20070108	6	94%	☐

Abstract: A digital rights management (DRM) system for distribution of digital content such as audio or video uses a token passing scheme to enhance security of the content from unauthorized access and use, including access by unauthorized players. The token is requested from the central content or DRM server by a host device such as a user's computer, using security related information. The token is then passed to a media player associated with the host device, the token being encrypted using a key special to that particular player. Upon receipt of the token, the player transmits back to the server certain related security information confirming receipt of the token and in return receives keys for decryption of the associated digital content. In the absence of proper passing of the token, player access to the content, or further access to other content, is denied. This also allows the player to communicate directly with the server for obtaining the keys.
MainClaim: A computer enabled method for controlling distribution of media content between a source, a host device, and a player associated with the host device, the method comprising the acts of:exchanging authentication data between the player and the host device;transmitting a request for a token from the host device to the source;receiving the token at the host device;sending the token to the player;sending identification data from the player to the host source including the token; andreceiving at the player, in response to the token, at least one key relating to encryption or decryption of the content to be distributed.

7,568,111	System and method for using DRM to control conditional access to DVB content	Nokia Corporation	Alve; Jukka | Ikonen; Ari | Kangas; Mauri | Heikkila; Tapani	713	G06F	20031111	0	100%	☐

Abstract: A system and method is disclosed for providing DRM in a broadcast environment. In accordance with the embodiment, a DRM system distributes encrypted service keys over the mobile telephone network to a mobile terminal. The mobile terminal receives the encrypted service key and uses it to decrypt encrypted content keys received from a DVB set top box. The decrypted content keys are sent to the set box over local link where they are used to decrypt encrypted broadcast content.
MainClaim: A method for protecting broadcast digital content comprising: encrypting digital content with a first key; encrypting the first key with a second key; broadcasting the encrypted digital content and the encrypted first key; protecting the second key and assigning rights to the second key; transmitting the protected second key and the assigned rights to a mobile terminal over a mobile network; sending the encrypted first key from a content display device to a mobile terminal; decrypting the encrypted first key with the protected second key in accordance with the assigned rights; and sending the decrypted first key from the mobile terminal to the content display device, wherein the content display device is at least in part of an end user device.

	Decoupling rights in		Zweig; Jonathan						

2007/0233606	a digital content unit from download	Apple Computer, Inc.	M. | Woodyatt; James H.	705	G06Q	20060404	8	94%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

2007/0233602	DECOUPLING RIGHTS IN A DIGITAL CONTENT UNIT FROM DOWNLOAD	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	H04L	20061018	6	93%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for providing access to a digital content unit, comprising the operations of: determining if the digital content unit is authorized; in the event the digital content unit is authorized, presenting a first content of the digital content unit; and in the event the digital content unit is not authorized, presenting a second content of the digital content unit.

2007/0260548	DEVICE-INDEPENDENT MANAGEMENT OF CRYPTOGRAPHIC INFORMATION	Apple Computer, Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois	705	H04L	20060503	6	92%	☐

Abstract: Some embodiments provide an account-based DRM system for distributing content. The system includes several devices that are associated with one particular account. The system also includes a set of DRM computers that receives a request to access a particular piece of content on the devices associated with the particular account. The DRM computer set then generates a several keys for the devices, where each particular key of each particular device allows the particular device to access the particular piece of content on the particular device. Through a network, the DRM computer set of some embodiments sends the particular piece of content and the generated keys to the devices associated with the particular account. The network is a local area network, a wide area network, or a network of networks, such as the Internet. In some of these embodiments, the DRM computer set sends the content and keys to one device (e.g., a computer), which is used to distribute the content and the key(s) to the other devices associated with the account. In some embodiments, the DRM computer set individually encrypts each key in a format that is used during its transport to its associated device and during its use on this device.
MainClaim: A digital rights management (DRM) method for distributing a piece of content to a user, said user having first and second devices for accessing the content, the method comprising: a) sending to the user the piece of content in a protected format; b) from a set of DRM computers, sending to the user a first key that enables the user to access the protected content on the first device; c) from the set of DRM computers, sending to the user a second key that enables the user to access the protected content on the second device.

7,290,141	Authentication of remotely originating network messages	Nokia, Inc.	Sengodan; Senthil | Chan; Tat	713	G06F	20020627	0	100%	☐

Abstract: A method and system for authenticating messages received from users across multiple remote devices are provided. A residential gateway authenticates a user using a modified digest authentication scheme by storing a sequence number in the nonce field. Access encryption keys and sequence number spaces may be assigned based on user or on user/remote device pairs. When sequence number spaces are assigned based on user, and the user uses multiple remote devices to access the residential gateway, the sequence number space may be divided into mini-sequence number spaces for each of the multiple remote devices. Access encryption may be two-tiered, such that a secondary key is generated based on a user's primary key, and the secondary key is only valid for a limited amount of time before it expires and a new secondary key must be generated.
MainClaim: A device, comprising: a database configured to store information corresponding to ranges of sequence numbers associated with pairs of users and remote devices, and to store sliding window information corresponding to each range of sequence numbers; and a processor configured to control operation of the device, and further configured to: (i) receive a first message comprising a user identification (ID) and a first remote device ID, (ii) assign a first available range of sequence numbers to the user ID and first remote device ID pair, (iii) receive a second message comprising the user ID and a second remote device ID, and (iv) assign a second available range of sequence numbers to the user ID and second remote device ID pair, wherein the first available range of sequence numbers and the second available range of sequence numbers each comprise a sub-part of a range of sequence numbers assigned to the user ID, and wherein the size of each of the first available range of sequence numbers and the second available range of sequence numbers is proportional to an access frequency used by the user ID.

	CLIENT-SERVER OPAQUE TOKEN		Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-						

2009/0037725	PASSING APPARATUS AND METHOD	Apple Inc.	Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

7,477,749	Integrity protection of streamed content	Nokia Corporation	Pippuri; Sami	380	H04L	20040512	0	100%	☐

Abstract: The invention relates to a method, a system, an electronic device and a computer program for providing at least one content stream to an electronic device applying Digital Rights Management (DRM). In the method a master integrity key is obtained in a streaming node. An encrypted master integrity key is obtained in an electronic device. The encrypted master integrity key is decrypted in the electronic device. At least one session integrity key is formed in the streaming node and in the electronic device using at least the master integrity key and the integrity of at least one content stream is protected between the streaming node and the electronic device using the at least one session integrity key.
MainClaim: A method, comprising: requesting by an electronic device information on at least one content stream from a streaming server; receiving information in said electronic device on the at least one content stream, the information comprising at least one seed value and a master integrity key encrypted with a content key; decrypting said encrypted master integrity key using said content key in said electronic device; forming at least one session integrity key using said at least one seed value and said master integrity key in said electronic device; receiving from said streaming server at said electronic device said at least one integrity protected content stream, said integrity protected content stream being protected with said at least one session integrity key; checking in said electronic device the integrity of said at least one integrity protected content stream using said at least one session integrity key; and decrypting said at least one integrity protected content stream using at least in part the content key.

2007/0260548	DEVICE-INDEPENDENT MANAGEMENT OF CRYPTOGRAPHIC INFORMATION	Apple Computer, Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois	705	H04L	20060503	6	92%	☐

Abstract: Some embodiments provide an account-based DRM system for distributing content. The system includes several devices that are associated with one particular account. The system also includes a set of DRM computers that receives a request to access a particular piece of content on the devices associated with the particular account. The DRM computer set then generates a several keys for the devices, where each particular key of each particular device allows the particular device to access the particular piece of content on the particular device. Through a network, the DRM computer set of some embodiments sends the particular piece of content and the generated keys to the devices associated with the particular account. The network is a local area network, a wide area network, or a network of networks, such as the Internet. In some of these embodiments, the DRM computer set sends the content and keys to one device (e.g., a computer), which is used to distribute the content and the key(s) to the other devices associated with the account. In some embodiments, the DRM computer set individually encrypts each key in a format that is used during its transport to its associated device and during its use on this device.
MainClaim: A digital rights management (DRM) method for distributing a piece of content to a user, said user having first and second devices for accessing the content, the method comprising: a) sending to the user the piece of content in a protected format; b) from a set of DRM computers, sending to the user a first key that enables the user to access the protected content on the first device; c) from the set of DRM computers, sending to the user a second key that enables the user to access the protected content on the second device.

6,931,528	Secure handshake protocol	Nokia Networks Oy	Immonen; Olli	713	H04L	19981110	0	100%	☐

Abstract: A method for a secure handshake protocol between A and B, connected by a slow channel is provided in which A sends a first message indicating a set of cipher suites with parameters, and its identifier and B selects a cipher suite, obtains A's certificate over a fast connection, verifies A's certificate and obtains A's public key. Next B sends a second message comprising B's certificate, and an indication that B has verified A's certificate, and an indication about the selected cipher suite. A begins to use the selected cipher suite, verifies B's certificate and obtains B's public key. Next A sends a third message indicating that A has verified B's certificate.
MainClaim: A method for a secure handshake protocol between a first party and a second party, connected via a communications channel, wherein each party supports a respective set of cipher suites and for each party, a respective certificate is defined, each of the certificates comprising a public key of its respective owner, the method being characterized in that comprising:

sending from the first party to the second party a first inter-party message indicating the set of cipher suites supported

by the first party, parameters required by the cipher suites, and an identifier of the first party;

wherein in response to the first inter-party message, the second party:

selects one of said indicated cipher suites which is also supported by the second party;

uses said identifier to obtain the certificate of the first party over a connection which is significantly faster than the communications channel connecting said parties;

verifies said obtained certificate of the first party and thereby obtains the public key of the first party;

sends a second inter-party message comprising the certificate of the second party, an indication that the second party has verified the certificate of the first party, and an indication about said selected cipher suite;

wherein in response to the second inter-party message, the first party:

begins to use the selected cipher suite;

verifies the certificate of the second party and thereby obtains the public key of the second party;

sends a third inter-party message indicating that the first party has verified the certificate of the second party;

and wherein information not needed for the above steps can be sent from the first party to the second party in the third inter-party message, thus providing a two-way key-exchange and mutual verification with an effective overhead of two inter-party messages.

7,424,615	Mutually authenticated secure key exchange (MASKE)	Apple Inc.	Jalbert; Christopher P. | Wallace; Leland A. | O'Rourke; David M.	713	H04L	20010730	3	94%	☐

Abstract: The invention provides a cryptographic method which includes receiving at a first entity a second public key M_A. At least one of a first session key K_B and a first secret S_B may be generated based on the second public key M_A. A first random nonce N_B may be generated which may be encrypted with at least one of the first session key K_B and the first secret S_B to obtain an encrypted random nonce. The encrypted random nonce may be transmitted from the first entity. In response to transmitting the encrypted random nonce, the first computer may receive a data signal containing a modification of the first random nonce N_B+1. If the modification of the first random nonce N_B+1 was correctly performed, then at least one of (i) opening a communication link at the first computer, and (ii) generating a first initialization vector I_B is performed.

MainClaim: A cryptographic method, including: generating, at a first entity, a first public key M_B, the first public key M_B being session specific; receiving from a second entity, at the first entity, a second public key M_A, the second public key M_A being session specific; generating, at the first entity, a first secret S_B by hashing one or more parameters that are known to the first entity and the second entity, at least one of the parameters being a result of hashing one or more of the following: a first password P_B, the first public key M_B, and the second public key M_A; generating, at the first entity, a first session key K_B, the first session key K_B being different from the first secret S_B, both the first session key K_B and the first secret S_B being computed from the second public key M_A; encrypting, at the first entity, a first random nonce N_B with the first session key K_B or the first secret S_B to obtain a first encrypted result; encrypting, at the first entity, the first encrypted result with the other one of the first session key K_B or the first secret S_B to obtain an encrypted random nonce; transmitting the encrypted random nonce from the first entity to the second entity; receiving a response to the encrypted random nonce; and authenticating through determining whether the response includes a correct modification of the first random nonce N_B.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	92%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using

cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

6,985,719	Secure wireless backup mechanism	Nokia, Inc.	Leppinen; Mika | Padma; Sachin | Reddy; Anil Y.	455	H04M	20001221	0	100%	☐

Abstract: A convenient way for securely storing sensitive data in a public storage area over a wireless network is disclosed. Data that is to be backed up is encrypted using a public key of the user and is sent over the wireless network using a Wireless Application Protocol (WAP) technique and preferably contained within the body of a SyncML document or an XML document. The encrypted data can be later retrieved using a WAP technique and decrypted using the private key of the user.
MainClaim: A method for backing-up data in a wireless network, the method comprising steps of:

selecting data within a wireless device for backup in a storage area, the storage area being accessible by the wireless device through the wireless network;

encrypting the selected data; and

sending the encrypted data to the storage area

wherein the step of sending the encrypted data to the storage area is done using a Wireless Application Protocol (WAP) technique.

2007/0028120	Secure software updates	Apple Computer, Inc.	Wysocki; Christopher R. | Ward; Alan	713	G06F	20050726	1	93%	☐

Abstract: Improved techniques to update software in electronic devices that are already in use are disclosed. In one embodiment, software can be updated in a secure and controlled manner using cryptography. The authenticity of the updated software as well as its appropriateness for the particular electronic device can be confirmed prior to update. The software can also be updated on a per module basis. In one embodiment, a server hosts software updates for various electronic devices, and supplies the appropriate software update to the electronic devices via a data network.
MainClaim: A method for upgrading software on an electronic device that operates at least partially in accordance with software, said method comprising the acts of: (a) sending device information to a host device; (b) receiving an encrypted software module at the electronic device, the encrypted software module being previously encrypted at the host device particularly for use by the electronic device; (c) decrypting the encrypted software module at the electronic device; and (d) thereafter installing the software module on the electronic device.

7,580,894	Method, device and computer program product for activating the right of use at least one secured content item	Nokia Corporation	Vataja; Timo | Inget; Virve	705	G06Q	20040930	0	100%	☐

Abstract: The invention discloses a method, device and computer program product for activating the right of use of at least one secured content item in a device. The method comprises providing a device with at least one unencrypted rights object, wherein the at least one rights object assigns the right of use of at least one secured content item. When the device is powered on for the first time, a device-resident program is executed and the program encrypts at least one rights object with a device-specific encryption key.
MainClaim: A method for encrypting information in a device, wherein the method comprises: providing a single device with at least one unencrypted rights file, wherein the at least one rights file assigns the right of use of at least one secured content item, said providing occurring prior to powering on the device for the first time; powering on the device for the first time; upon powering on the device for the first time, executing a program resident on the device by a processor, such that when executed by the processor the program encrypts said at least one rights file with an encryption key specific to the device; and opening a secured content item among said at least one secured content item in case said opening of said content item is allowed in a rights file among said at least one rights file in the device, said opening of said secured content item being based on information in said rights file, said rights file comprising a precondition rule for presenting the at least one secured content item by executing a presentation software in the device, said precondition rule comprising at least one of a time limit, a number of presentation times and allowed device identities.

2007/0233602	DECOUPLING RIGHTS IN A DIGITAL CONTENT UNIT FROM DOWNLOAD	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	H04L	20061018	6	96%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate

copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for providing access to a digital content unit, comprising the operations of: determining if the digital content unit is authorized; in the event the digital content unit is authorized, presenting a first content of the digital content unit; and in the event the digital content unit is not authorized, presenting a second content of the digital content unit.

2007/0233606	Decoupling rights in a digital content unit from download	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	G06Q	20060404	8	95%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

2007/0260548	DEVICE-INDEPENDENT MANAGEMENT OF CRYPTOGRAPHIC INFORMATION	Apple Computer, Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois	705	H04L	20060503	6	93%	☐

Abstract: Some embodiments provide an account-based DRM system for distributing content. The system includes several devices that are associated with one particular account. The system also includes a set of DRM computers that receives a request to access a particular piece of content on the devices associated with the particular account. The DRM computer set then generates a several keys for the devices, where each particular key of each particular device allows the particular device to access the particular piece of content on the particular device. Through a network, the DRM computer set of some embodiments sends the particular piece of content and the generated keys to the devices associated with the particular account. The network is a local area network, a wide area network, or a network of networks, such as the Internet. In some of these embodiments, the DRM computer set sends the content and keys to one device (e.g., a computer), which is used to distribute the content and the key(s) to the other devices associated with the account. In some embodiments, the DRM computer set individually encrypts each key in a format that is used during its transport to its associated device and during its use on this device.
MainClaim: A digital rights management (DRM) method for distributing a piece of content to a user, said user having first and second devices for accessing the content, the method comprising: a) sending to the user the piece of content in a protected format; b) from a set of DRM computers, sending to the user a first key that enables the user to access the protected content on the first device; c) from the set of DRM computers, sending to the user a second key that enables the user to access the protected content on the second device.

7,493,291	System and method for locally sharing subscription of multimedia content	Nokia Corporation	Simelius; Kim	705	H04K	20030206	0	100%	☐

Abstract: This invention relates to a method, devices and system for distributing rights to a digital content and for accessing said digital content. Further, the invention relates to a voucher structure defining rights to said digital content. Still further, the invention relates to a digital content structure adapted for arranging the distribution of rights to the digital content.
MainClaim: A system for providing access to digital content comprising: a first client family comprising a first parent client and one or more first child clients connected in a second communication network, the system providing the first client family access to a first digital content; a right of use voucher associated with said first digital content comprising a first content key and one or more first child vouchers; and a content provider programmed to connect to said first parent client through a first communication network and programmed to communicate said right of use voucher to said first parent client; wherein said first parent client is programmed to communicate said one or more first child vouchers to said one or more first child clients through said second communication network, and said one or more first child clients are programmed to access said first digital content associated with said right of use voucher; and wherein said content provider is programmed to provide access to said first digital content to said one or more first child clients having a child voucher access, through said first communication network; a second parent client is programmed to connect to said content provider utilizing said communication network; a second right of use voucher including one or more second child vouchers that are communicated by the content provider to said second parent client, the second right of use voucher being used to access a second digital content provided by said content provider; a third communication network programmed to forward said one or more second child vouchers to one or more second child clients, wherein said one or more second child vouchers are programmed to access said second digital content when the validity of said one or more second child vouchers is authenticated by said second parent client; and wherein said first child clients and said one or more second child clients are programmed to exchange said one or more first child vouchers and said one or more second child vouchers by: verifying compatibility between one or more first and second child vouchers; deactivating to-be-exchanged child vouchers by setting state flags in associated right of use vouchers in said first and second parent client; and a first child client of said one or more first child clients having a second child voucher of said one or more second child vouchers is programmed to access said second digital content with said second child voucher provided that said first parent client and said second parent client are able to authenticate the validity of said second child voucher; and a second child client of said one or more second child clients having a first child voucher of said one or more first child vouchers is programmed to access said first digital content with said first child voucher provided that said first parent client and said second parent client are able to authenticate the validity of said first child voucher.

2007/0233606	Decoupling rights in a digital content unit from download	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	G06Q	20060404	8	96%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

2007/0233602	DECOUPLING RIGHTS IN A DIGITAL CONTENT UNIT FROM DOWNLOAD	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	H04L	20061018	6	95%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for providing access to a digital content unit, comprising the operations of: determining if the digital content unit is authorized; in the event the digital content unit is authorized, presenting a first content of the digital content unit; and in the event the digital content unit is not authorized, presenting a second content of the digital content unit.

2008/0168568	Token passing technique for media playback devices	Apple Inc.	Brodersen; Rainer | Robbin; Jeffrey | Farrugia; Augustin J. | Schultz; Rod	726	H04L	20070108	6	94%	☐

Abstract: A digital rights management (DRM) system for distribution of digital content such as audio or video uses a token passing scheme to enhance security of the content from unauthorized access and use, including access by unauthorized players. The token is requested from the central content or DRM server by a host device such as a user's computer, using security related information. The token is then passed to a media player associated with the host device, the token being encrypted using a key special to that particular player. Upon receipt of the token, the player transmits back to the server certain related security information confirming receipt of the token and in return receives keys for decryption of the associated digital content. In the absence of proper passing of the token, player access to the content, or further access to other content, is denied. This also allows the player to communicate directly with the server for obtaining the keys.
MainClaim: A computer enabled method for controlling distribution of media content between a source, a host device, and a player associated with the host device, the method comprising the acts of:exchanging authentication data between the player and the host device;transmitting a request for a token from the host device to the source;receiving the token at the host device;sending the token to the player;sending identification data from the player to the host source including the token; andreceiving at the player, in response to the token, at least one key relating to encryption or decryption of the content to be distributed.

7,698,568	System and method for using DRM to control conditional access to broadband digital content	Nokia Corporation	Alve; Jukka | Ikonen; Ari | Kangas; Mauri | Heikkila; Tapani	713	G06F	20040909	0	100%	☐

Abstract: A system and method is disclosed for providing DRM in a broadcast environment. In accordance with the embodiment, a DRM system distributes encrypted service keys over the mobile telephone network to a mobile terminal. The mobile terminal receives the encrypted service key and uses it to decrypt encrypted content keys received from a DVB set top box. The decrypted content keys are sent to the set box over local link where they are used to decrypt encrypted broadcast content. A power management technique for mobile receivers is also disclosed that enables the receiver hardware to power off during a portion of the rendering process.
MainClaim: A method for protecting broadcast digital content comprising: encrypting digital content with a first key; encrypting the first key with a second key; broadcasting the encrypted first key; broadcasting the encrypted digital content in a number of segments; protecting the second key and assigning rights to the second key; transmitting, via a protected voucher, the protected second key and the assigned rights to a mobile terminal over at least one of a number of networks; and transmitting a protected executable application to the mobile terminal, wherein the protected executable application governs key decryption, wherein the protected executable application enforces the assigned rights, and wherein the second key decrypts the protected executable application.

2007/0233602	DECOUPLING RIGHTS IN A DIGITAL CONTENT UNIT FROM DOWNLOAD	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	H04L	20061018	6	93%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user.

The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for providing access to a digital content unit, comprising the operations of: determining if the digital content unit is authorized; in the event the digital content unit is authorized, presenting a first content of the digital content unit; and in the event the digital content unit is not authorized, presenting a second content of the digital content unit.

2007/0233606	Decoupling rights in a digital content unit from download	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	G06Q	20060404	8	92%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

7,607,012	Method for securing a communication	Nokia Corporation	Nyberg; Kaisa	713	H04L	20031001	0	100%	☐

Abstract: A method for securing a communication between at least one initiator (I) and one responder (R) generates a first key (KEr) within the responder (R), generates a second key (K) within the responder (R), computes an authentication code (C) using the first key (KEr) and the second key within said responder (R), transmits the second key (K) and the authentication code (C) from the responder (R) to the initiator (I) using a first communication channel, transmits the first key (KEr) from the responder (R) to the initiator (I) using a second communication channel, computes a verification code (C') using the first key (KEr) and the second key (K) within the initiator (I), and compares the verification code (C') with the authentication code (C) within the initiator.
MainClaim: A method comprising: computing an authentication code using a first key and a second key within a responder, transmitting both said second key and said authentication code from said responder to an initiator using a first communication channel, after computing said authentication code, transmitting said first key from said responder to said initiator using a second communication channel, computing a verification code using said first key and said second key within said initiator, comparing said verification code with said authentication code within said initiator, and authenticating said responder as a correct communication partner if said comparing checks out, wherein said second key is a secret key and said first communication channel is a secure channel.

2009/0037725	CLIENT-SERVER OPAQUE TOKEN PASSING APPARATUS AND METHOD	Apple Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois | Brouwer; Michael L. H. | Henzie; Justin	713	H04L	20080708	14	93%	☐

Abstract: In the computer client-server context, typically used in the Internet for communicating between a central server and user computers (clients), a method is provided for token passing which enhances security for client-server communications. The token passing is opaque, that is tokens as generated by the client and server are different and can be generated only by one or the other but can be verified by the other. This approach allows the server to remain stateless, since all state information is maintained at the client side. This operates to authenticate the client to the server and vice versa to defeat hacking attacks, that is, penetrations intended to obtain confidential information. The token as passed includes encrypted values including encrypted random numbers generated separately by the client and server, and authentication values based on the random numbers and other verification data generated using cryptographic techniques.
MainClaim: A computer enabled method of communicating between a client and a server over a computer network, comprising the acts of:generating a first token at the client;transmitting the first token to the server;receiving at the client in response a second token, which is a function of the first token;decrypting at least a portion of the second token at the client wherein another portion of the second token is not accessible to the client;verifying from the decrypted portion that the server received the first token;extracting a session key from the second token;establishing a communication session between the client and server; andtransmitting from the client to the server a communications request accompanied by another portion of the second token and a proof established from the decrypted portion.

2005/0198489	Server computer issued credential authentication	Apple Computer, Inc.	Wallace, Leland A. | O'Rourke, David M.	713	G06F	20031224	5	92%	☐

Abstract: A method for authenticating computers is disclosed. The method comprises issuing a credential from a first computer to a second computer. When the second computer authenticates to the first computer, the second computer transmits the credential and a first challenge to the first computer. The first computer determines whether the credential is valid, computes a first response to the first challenge, and generates a second challenge. The first computer transmits the first response and the second challenge to the second computer. The second computer determines whether the first response is valid and computes a second response to the second challenge. The second computer transmits the second response to the first computer in order to verify and authenticate the computers.
MainClaim: A method for authenticating a computer, the method comprising the following steps: issuing a credential from a first computer to a second computer; transmitting said credential and a computer challenge from the second computer to the first computer when the second computer is to be authenticated; transmitting a response to said

computer challenge from said first computer to said second computer; and verifying said response with said second computer in order to authenticate and verify said computers.

7,500,098	Secure mode controlled memory	Nokia Corporation	Paatero; Lauri	713	H04L	20040319	0	100%	☐

Abstract: The present invention relates to a method of, and a system for, enhancing data security, which data is to be executed in an electronic device (101) comprising a secure execution environment (104) to which access is restricted. A basic idea of the present invention is that, at device boot, data in the form of e.g. program code is copied from permanent memory (112) to temporary memory (110). The integrity of this program code must be verified to ensure that the program code has not been altered during the transmission between the memories. Further, a new secret key is generated in the secure execution environment. This new secret key is used by a device processor (103) to encrypt the program code to be stored in the temporary memory in order to ensure that the program code is kept secret during transmission. The device processor thereafter writes the encrypted program code into the temporary memory.
MainClaim: A method of enhancing data security comprising: reading strongly encrypted data external to a secure execution environment of an electronic device to which access is restricted, wherein said strongly encrypted data comprises program code to be executed in said electronic device, verifying, in said secure execution environment, the integrity of said strongly encrypted data; generating in said secure execution environment of said electronic device to which access is restricted, a new secret key for less strongly encrypting said verified data; less strongly encrypting, in said secure execution environment, the verified data by means of said new secret key; writing the less strongly encrypted data into storage, wherein at least some of said storage is external to said secure execution environment, and repeating each of said above-recited actions.

2007/0006183	Run-time code injection to perform checks	Apple Computer, Inc.	Mensch; James | Hauck; Jerry | Misra; Ronnie	717	G06F	20050818	1	92%	☐

Abstract: A digital rights management system permits an application owner to cause code to be injected into the application's run-time instruction stream so as to restrict execution of that application to specific hardware platforms. In a first phase, an authorizing entity (e.g., an application owner or platform manufacturer) authorizes one or more applications to execute on a given hardware platform. Later, during application run-time, code is injected that performs periodic checks are made to determine if the application continues to run on the previously authorized hardware platform. If a periodic check fails, at least part of the application's execution string is terminated--effectively rendering the application non-usable. The periodic check is transparent to the user and difficult to circumvent.
MainClaim: A digital rights management method, comprising: selecting an execution unit associated with an application; injecting first instructions into the selected execution unit to generate a cryptologic challenge; obtaining a response to the cryptologic challenge; and halting the execution unit if the obtained response does not satisfy the cryptologic challenge.

2007/0288886	RUN-TIME CODE INJECTION TO PERFORM CHECKS	APPLE INC.	Mensch; James | Hauck; Jerry | Misra; Ronnie	717	G06F	20070427	1	92%	☐

Abstract: A digital rights management system permits an application owner to cause code to be injected into the application's run-time instruction stream so as to restrict execution of that application to specific hardware platforms. In a first phase, an authorizing entity (e.g., an application owner or platform manufacturer) authorizes one or more applications to execute on a given hardware platform. Later, during application run-time, code is injected that performs periodic checks are made to determine if the application continues to run on the previously authorized hardware platform. If a periodic check fails, at least part of the application's execution string is terminated--effectively rendering the application non-usable. The periodic check is transparent to the user and difficult to circumvent.
MainClaim: A digital rights management method, comprising: selecting an execution unit associated with an application; injecting first instructions into the selected execution unit to generate a cryptologic challenge; obtaining a response to the cryptologic challenge; and halting the execution unit if the obtained response does not satisfy the cryptologic challenge.

7,694,341	Run-time code injection to perform checks	Apple Inc.	Mensch; James | Hauck; Jerry | Misra; Ronnie	726	H04L	20050818	1	92%	☐

Abstract: A digital rights management system permits an application owner to cause code to be injected into the application's run-time instruction stream so as to restrict execution of that application to specific hardware platforms. In a first phase, an authorizing entity (e.g., an application owner or platform manufacturer) authorizes one or more applications to execute on a given hardware platform. Later, during application run-time, code is injected that performs periodic checks are made to determine if the application continues to run on the previously authorized hardware platform. If a periodic check fails, at least part of the application's execution string is terminated--effectively rendering the application non-usable. The periodic check is transparent to the user and difficult to circumvent.
MainClaim: A digital rights management method, comprising: selecting an execution unit associated with an application; injecting first instructions into the selected execution unit to generate a cryptologic challenge; obtaining a response to the cryptologic challenge; and halting the execution unit if the obtained response does not satisfy the cryptologic challenge.

7,591,017	Apparatus, and method for implementing remote client integrity verification	Nokia Inc.	Watkins; Craig R. | Barrett; Jeremey | Cain; Adam | Lichtenwalter; Brian | Myers; Daniel | Schall; Steven	726	G06F	20030624	0	100%	☐

Abstract: Apparatus, system, method and computer program product for verifying the integrity of remote network devices that request access to network services and resources. Unintended computer programs such as viruses, worms, or Trojan horses, may compromise remote devices. The invention involves downloading verification software over the

web into the web browser of a client for the purpose of performing checks to verify the integrity and security of the client's device or system. The results of such checks are returned over the web to be used in security decisions involving authentication and the grant of authorization to access services and resources.
MainClaim: An apparatus, comprising: a proxy configured to receive a request for network services by at least one remote network device and to perform a security integrity scanning operation on the requesting remote network device, wherein the security scanning operation is performed before and after the remote network device signs on to the proxy; and an authorization processor and access rules controller configured to determine if the remote network device is authorized to access the requested network services based on the results of the security scanning operation.

2010/0122327	SECURE AUTHENTICATION FOR ACCESSING REMOTE RESOURCES	APPLE INC.	Linecker; Anton Franz | Kossovsky; Yuval | Libich; Martin	726	H04L	20081110	3	93%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for secure authentication for accessing remote resources are disclosed. In some implementations, a user is authenticated for a first time on an interface using a first communications channel; the user is authenticated a second time on the interface using a second communications channel; access privileges are determined based on authenticating the user for the second time; and a random Uniform Resource Locator (URL) is generated based on the access privileges, where the random URL is single-use and indirectly associated with a requested resource.
MainClaim: A method comprising:receiving a first authentication factor from an interface using a first communications channel;determining access privileges based on the first authentication factor;generating a first random Uniform Resource Locator (URL) and a first resource based on the access privileges, the first resource being identified by the first random URL and configured to receive a second authentication factor, and the first random URL being single-use;providing the first resource to the interface using the first communications channel; andproviding the second authentication factor to the interface using a second communications channel.

7,542,569	Security of data connections	Nokia Siemens Networks OY	Leiwo; Jussipekka	380	H04K	20000517	0	100%	☐

Abstract: The invention concerns the security of the data connections of a telephone user. The basic idea of the invention is to forward the authentication of a telephone system to the leg between two private data networks connected via an arbitrating network. When establishing the connection, the private network connected to the telephone system forwards the authenticated subscriber identity to the other private network. To provide the identity forwarded with authenticity, the message containing the identity is signed. To provide encryption of the subscriber identity, the message is encrypted using a public key method. In response the second private network generates a session key to be used in the connection. This key is signed and encrypted using a public key method and sent to the first private network. During the connection, a symmetrical encryption method with the session key is used.
MainClaim: A method, comprising: providing security of data connections in an arrangement comprising a telecommunication network comprising subscribers, a first private data network connected to the telecommunication network, a second private data network connected to the telecommunication network via the first private network, the second private data network comprising a server providing data services; authenticating the subscriber between the telecommunication network and the first private data network using an authentication procedure provided by the telecommunication network; forming, in the first private network, a message comprising the identification of the subscriber received from the telecommunication network and an authenticity code of the message; determining, in the first private data network, the identity of the server of the second private data network based on the received identification of the subscriber; sending said message to the server of the second private data network; and in response to having received the message in the second private data network: verifying the authenticity code, checking the identified user's right to the requested service, and when the user is entitled to the requested service, generating and sending a reply to the first private data network.

7,424,615	Mutually authenticated secure key exchange (MASKE)	Apple Inc.	Jalbert; Christopher P. | Wallace; Leland A. | O'Rourke; David M.	713	H04L	20010730	3	92%	☐

Abstract: The invention provides a cryptographic method which includes receiving at a first entity a second public key M_A. At least one of a first session key K_B and a first secret S_B may be generated based on the second public key M_A. A first random nonce N_B may be generated which may be encrypted with at least one of the first session key K_B and the first secret S_B to obtain an encrypted random nonce. The encrypted random nonce may be transmitted from the first entity. In response to transmitting the encrypted random nonce, the first computer may receive a data signal containing a modification of the first random nonce N_B+1. If the modification of the first random nonce N_B+1 was correctly performed, then at least one of (i) opening a communication link at the first computer, and (ii) generating a first initialization vector I_B is performed.
MainClaim: A cryptographic method, including: generating, at a first entity, a first public key M_B, the first public key M_B being session specific; receiving from a second entity, at the first entity, a second public key M_A, the second public key M_A being session specific; generating, at the first entity, a first secret S_B by hashing one or more parameters that are known to the first entity and the second entity, at least one of the parameters being a result of hashing one or more of the following: a first password P_B, the first public key M_B, and the second public key M_A; generating, at the first entity, a first session key K_B, the first session key K_B being different from the first secret S_B, both the first session key K_B and the first secret S_B being computed from the second public key M_A; encrypting, at the first entity, a first random nonce N_B with the first session key K_B or the first secret S_B to obtain a first encrypted result; encrypting, at the first entity, the first encrypted result with the other one of the first session key K_B or the first secret S_B to obtain an encrypted random

nonce; transmitting the encrypted random nonce from the first entity to the second entity; receiving a response to the encrypted random nonce; and authenticating through determining whether the response includes a correct modification of the first random nonce N_B.

7,690,042	Method and device for sharing of content protected by digital rights management	Nokia Corporation	Rantalahti; Antti	726	G06F	20031208	0	100%	☐

Abstract: The present invention provides methods and devices allowing a secure way of sharing DRM-protected content. A content holder may share the content under certain restrictions. These restrictions include range-based, time-based or usage-based limitations. The invention offers a secure sharing method preventing copyright violations and preserving the copyright owners control over the content use, while also offering new marketing possibilities to him.
MainClaim: Method for sharing content protected by digital rights management (DRM) between a first mobile electronic terminal device and a second mobile electronic terminal device, wherein said first mobile electronic terminal device is authorized for accessing said content, comprising: receiving a request for sharing said content from said second mobile electronic terminal device; answering said request by sending a confirmation to said second mobile electronic terminal device about authorization of said first mobile electronic terminal device to access said content; a data signal based on said authorization to said second mobile electronic terminal device and indicative of at least one condition said second mobile electronic terminal device has to meet in order to be authorized for accessing said content; wherein a key for accessing said content is provided in said first mobile electronic terminal device, further comprising: receiving a clock synchronization signal from said second mobile electronic terminal device; generating a plurality of keys k_i derived from said key, wherein said keys k_i are suitable to partially access said content; and sending said keys k_i to said second mobile electronic terminal device in accordance with said clock synchronization signal.

2007/0233602	DECOUPLING RIGHTS IN A DIGITAL CONTENT UNIT FROM DOWNLOAD	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	H04L	20061018	6	93%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for providing access to a digital content unit, comprising the operations of: determining if the digital content unit is authorized; in the event the digital content unit is authorized, presenting a first content of the digital content unit; and in the event the digital content unit is not authorized, presenting a second content of the digital content unit.

2007/0233606	Decoupling rights in a digital content unit from download	Apple Computer, Inc.	Zweig; Jonathan M. | Woodyatt; James H.	705	G06Q	20060404	8	92%	☐

Abstract: Systems and methods for enabling a user to obtain rights in a legitimate copy of a digital content unit without downloading the copy from a digital content store are provided. The systems and methods provide an encrypted copy of a digital content unit to a first user and transcript the encrypted copy to generate the legitimate copy to a second user. The encrypted copy is encrypted with a first encrypt key that may be associated with the first user and the legitimate copy is encrypted with a second encrypt key that may be associated with the second user.
MainClaim: A method for authorizing a copy of a digital content unit to a first user without downloading the copy from a digital content store, the method comprising: obtaining information related to an encrypted copy of the digital content unit possessed by a second user, the encrypted copy of the digital content unit encrypted with a first encrypt key; providing a right to obtain the legitimate copy of the digital content unit to the first user; and generating the legitimate copy of the digital content unit from the encrypted copy of the digital content unit, the generation occurring with a second encrypt key.

7,707,114	Enabling modification of control information, which controls the rights to content, where access to a key for decrypting the content requires a particular value that becomes modified when the control information is modified	Nokia Corporation	Tuoriniemi; Samuli	705	G06F	20030625	0	100%	☐
2007/0260548	DEVICE-INDEPENDENT MANAGEMENT OF CRYPTOGRAPHIC INFORMATION	Apple Computer, Inc.	Farrugia; Augustin J. | Fasoli; Gianpaolo | Riendeau; Jean-Francois	705	H04L	20060503	6	95%	☐

Abstract: Some embodiments provide an account-based DRM system for distributing content. The system includes several devices that are associated with one particular account. The system also includes a set of DRM computers that receives a request to access a particular piece of content on the devices associated with the particular account. The DRM

computer set then generates a several keys for the devices, where each particular key of each particular device allows the particular device to access the particular piece of content on the particular device. Through a network, the DRM computer set of some embodiments sends the particular piece of content and the generated keys to the devices associated with the particular account. The network is a local area network, a wide area network, or a network of networks, such as the Internet. In some of these embodiments, the DRM computer set sends the content and keys to one device (e.g., a computer), which is used to distribute the content and the key(s) to the other devices associated with the account. In some embodiments, the DRM computer set individually encrypts each key in a format that is used during its transport to its associated device and during its use on this device.
MainClaim: A digital rights management (DRM) method for distributing a piece of content to a user, said user having first and second devices for accessing the content, the method comprising: a) sending to the user the piece of content in a protected format; b) from a set of DRM computers, sending to the user a first key that enables the user to access the protected content on the first device; c) from the set of DRM computers, sending to the user a second key that enables the user to access the protected content on the second device.

7,506,799	Method for the monitoring of system security in electronic devices	Nokia Corporation	O'Donoghue; Niall	235	G06F	20040730	0	100%	☐

Abstract: A method, an electronic device and a computer program, for the monitoring of system security in an electronic device. In the method a security monitoring entity initiation event provided by a user is detected. Security information on at least one application process executing in the electronic device is gathered. The security information is presented on a display in the electronic device. After the presentation of the security information, the user is, for example, allowed to select at least one of the at least one application process and the at least one of the at least one application process is terminated.
MainClaim: A method, comprising: detecting a user interface action in said electronic device; initiating a security monitoring application in said electronic device in response to said user interface action; gathering security information on at least a first application process among at least one application process executing in said electronic device to said security monitoring application, said security information comprising identification of a remote party with which said first application process is communicating, a port number or a protocol name for the protocol used by said first application process and a name of at least one file open in said first application process; forming a security information list using said security information, said security information list comprising an entry for said first application process, said entry comprising a name of said first application process, said identification of said remote party, said port number or said protocol name and said name of the at least one file; and presenting said security information list on a display in said electronic device.

2009/0249071	MANAGING CODE ENTITLEMENTS FOR SOFTWARE DEVELOPERS IN SECURE OPERATING ENVIRONMENTS	APPLE INC.	De Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	713	H04L	20090304	3	93%	☐

Abstract: Systems and methods for managing access to restricted data and system resources in secure operating environments are disclosed. Developer access profiles are issued by trusted authorities to developers which define entitlements that provide limited access to system resources and data on specified computing devices. The developer access profiles allow software developers to write software which accesses parts of the target platform environment which are typically off limits to third party developers.
MainClaim: A computer-implemented method of generating a developer access profile, said method comprising:receiving a developer identifier, a device identifier indicative of a developer computing device, and a requested entitlement related to the developer computing device;generating entitlement data based at least in part on the requested entitlement;digitally signing the developer identifier, the device identifier, and the generated entitlement data using a trusted authority private key; andtransmitting the digitally signed data to a developer.

2009/0228704	PROVIDING DEVELOPER ACCESS IN SECURE OPERATING ENVIRONMENTS	Apple Inc.	de Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	713	H04L	20090304	1	92%	☐

Abstract: In some embodiments, software developers may obtain development access to a computing device. A software developer may request development access from one or more trusted authorities, such as a manufacturer of the devices, an operating system provider, etc. The request may be approved by a single trusted authority, by at least one of a plurality of trusted authorities, or a combination of several trusted authorities. In order to enable developer access, a trusted authority may create a digital certificate that may be specific to the software developer and the devices and generate a profile that specifies the access rights of the developer on those devices. In addition, the digital certificate may enable the software developer to sign their applications or code so that it may execute on the device in accordance with their profile.
MainClaim: A computer-implemented method of providing developer access to a device, said method comprising:receiving a request for development access to a device from a software developer;generating a developer access profile for the device and the software developer in response to the request; anddelivering the developer access profile to the software developer.

2009/0247124	PROVISIONING MOBILE DEVICES BASED ON A CARRIER PROFILE	APPLE INC.	de Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	455	H04M	20090304	2	92%	☐

Abstract: Systems and methods for provisioning computing devices are provided. Carrier provisioning profiles are distributed to computing devices via an activation service during the provisioning process. The carrier provisioning profiles specify access limitations to certain device resources which may otherwise be available to users of the device.
MainClaim: A computer-implemented method of provisioning a computing device in a mobile network, the method comprising:receiving a provisioning profile comprising entitlement data indicative of allowed access to resources on a device;receiving a request to provision a computing device; andprovisioning the computing device at least in part by delivering the provisioning profile to the device.

7,668,830	Access rights	Nokia Corporation	Hakala; Kimmo	1	G06F	20041129	0	100%	☐

Abstract: A device and method define an access right to a shared data item. The method includes defining a group of one or more contacts in a contact list, assigning an access right to the group of one or more contacts, and assigning the group of one or more contacts to a shared data item. A device and method also provide a service based on the access right to the shared data item. The method includes receiving a request for a service from a user at a second device, the request including a resource identifier, selecting a user identifier for the user, selecting an access group identifier from a contact list using the user identifier, selecting an access right for the user using the access group identifier, determining if the user has permission to access a data item identified by the resource identifier, if the user has permission to access the data item, determining if the access right allows performance of the service, and providing the service at the first device if the access right allows performance of the service.
MainClaim: A method comprising: receiving a request for a service at a first device from a user at a second device, the request including a resource identifier and identity information corresponding to the second device; authenticating the second device at the first device using a device log-in and password; identifying the user of the second device comprising: accessing a contact list at the first device, comparing, at the first device, the identity information received from the second device and information within the accessed contact list, selecting a user identifier corresponding to the user of the second device as any identity information which matches the contact list information when a match is determined, wherein the user identifier is different than the device log-in and password, and wherein the matched information includes a phone number of the second device; selecting an access group identifier at the first device from the contact list using the user identifier; selecting an access right for the user using the access group identifier; determining if the user has permission to access a data item identified by the resource identifier; when the user has permission to access the data item, determining if the access right allows performance of the service; and providing the service at the first device when the access right allows performance of the service.

2010/0122327	SECURE AUTHENTICATION FOR ACCESSING REMOTE RESOURCES	APPLE INC.	Linecker; Anton Franz | Kossovsky; Yuval | Libich; Martin	726	H04L	20081110	3	92%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for secure authentication for accessing remote resources are disclosed. In some implementations, a user is authenticated for a first time on an interface using a first communications channel; the user is authenticated a second time on the interface using a second communications channel; access privileges are determined based on authenticating the user for the second time; and a random Uniform Resource Locator (URL) is generated based on the access privileges, where the random URL is single-use and indirectly associated with a requested resource.
MainClaim: A method comprising:receiving a first authentication factor from an interface using a first communications channel;determining access privileges based on the first authentication factor;generating a first random Uniform Resource Locator (URL) and a first resource based on the access privileges, the first resource being identified by the first random URL and configured to receive a second authentication factor, and the first random URL being single-use;providing the first resource to the interface using the first communications channel; andproviding the second authentication factor to the interface using a second communications channel.

7,444,624	Method for the secure interpretation of programs in electronic devices	Nokia Corporation	Tarkkala; Lauri	717	G06F	20050310	0	100%	☐

Abstract: The invention relates to method for secure interpretation of a program in an electronic device. An interpreted program is loaded and a stub executable is formed using a prototype stub executable. The stub executable is associated with the interpreted program. At least one second capability also is assigned to the interpreted program and further to the stub executable. The stub executable invokes at least one function in a shared interpreter library to interpret the interpreted program. An interpreter engine checks whether the interpreted program refers an external interpreted program code section. The interpreter engine infers at least one second capability for the external interpreted program code section. The interpreter engine disallows the execution of said external interpreted program code section if said at least one first capability is not a subset of said at least one second capability.
MainClaim: A method, comprising: providing at least one shared interpreter library and a prototype stub executable in an electronic device; loading an interpreted program in said electronic device; forming a stub executable using said prototype stub executable in said electronic device, said stub executable being an application executed within an operating system in said electronic device; associating said stub executable with said interpreted program in said electronic device; assigning at least one second capability to said stub executable; executing said stub executable in said electronic device in a separate process context; indicating, by said stub executable, to said at least one shared interpreter library said interpreted program; invoking, by said stub executable, at least one function in said at least one shared interpreter library to interpret said interpreted program; checking whether an external interpreted program code section is referred by the interpreted program; loading said external interpreted program code section in said electronic device; inferring at least one first capability for said external interpreted program code section; and disallowing the execution of said external interpreted program code section if said at least one second capability is not a subset of said at least one first capability.

2008/0127292	RESTRICTION OF PROGRAM PROCESS CAPABILITIES	Apple Computer, Inc.	Cooper; Simon | Lane-Smith; Nick | Osborne; Joshua	726	G06F	20060804	1	94%	☐

Abstract: This document describes systems and methods for restricting program process capabilities. In some implementations, the capabilities are restricted by limiting the rights or privileges granted to an application. A plurality of rules may be established for a program, or for a group of programs, denying that program the right to take actions which are outside of the actions needed to implement its intended functionality. A security policy is implemented to test actions initiated in response to an application against the rules to enable decisions restricting the possible actions of the program. Embodiments are disclosed which process the majority of decisions regarding actions against a security profile through use of a virtual machine. In some embodiments, the majority of decisions are resolved within the kernel space of an operating system.
MainClaim: A method of operating a computing device having an operating system defining kernel space and user space, comprising the acts of:causing a program to be operated by the computing device, the program having a plurality of intended functionalities, the program further having a set of policies associated therewith;monitoring calls attempted by the program, the monitoring performed by monitoring operations in the kernel initiated in response to the calls, the monitoring comprising intercepting a kernel operation at a point at which one or more arguments associated with the call have been resolved in the kernel for the kernel operation;determining whether at least one intercepted kernel operation initiated in response to the program is consistent with the policies associated with the program; andafter determining that an intercepted kernel operation initiated in response to the program is consistent with the policies associated with the program, allowing execution of the intercepted kernel operation.

2008/0168553	System and Method for Authenticating Code Executing on Computer System	APPLE COMPUTER, INC.	Kiehtreiber; Peter	726	H04L	20070105	1	94%	☐

Abstract: A code authentication architecture is used to sign code by adding one or more digital signatures to it. The digital signatures identify what authority signed the code, what the code contains, what type of program the code is, or other identifying information. When the signed code is later executed on a computer system, its identity is obtained by accessing encrypted information of the code stored on disk. The architecture then determines whether the identity satisfies at least one requirement imposed on the code for some purpose. If the code has been altered from when it was signed or it fails to satisfy a requirement imposed, the code will not have a valid identity. In addition to verifying the identity of the code, the architecture also validates executing code immediately responsible for managing the code and additional executing code in a chain of hosts responsible for managing one another.
MainClaim: A code authentication method, comprising:obtaining identity information for first code executing on a computer system by accessing secured information contained in the first code stored on disk in the computer system;obtaining at least one requirement;determining whether the identity information satisfies the at least one requirement;obtaining a result from the determination; andmaking the result available to a requester on the computer system.

2007/0245323	Sharing compiled versions of files	Apple Computer, Inc.	Bertelrud; Anders I.	717	G06F	20060413	1	93%	☐

Abstract: Sharing compiled versions of files among machines is disclosed. In some embodiments, upon determining at a machine that a file needs to be compiled, a previously compiled version of the file is requested and received from one or more other machines. In such a case, the processing associated with generating a compiled version of the file at the machine can be eliminated. Similar techniques can be employed to share and/or reuse a previously generated output of any repeatable computing task whose inputs can be characterized.
MainClaim: A method for performing a computing task, comprising: determining at a machine that a computing task needs to be performed; generating a representation of a set of one or more input conditions associated with the computing task; using the representation of the set of one or more input conditions to request from one or more other machines a previously generated set of one or more outputs of the computing task for that set of one or more input conditions; and receiving at the machine the previously generated set of one or more outputs from one or more of the other machines.

7,007,050	Method and apparatus for improved pseudo-random number generation	Nokia Corporation	Saarinen; Markku-Juhani	708	G06F	20010517	0	100%	☐

Abstract: A pseudo-random number generator (PRNG) for a cryptographic processing system is disclosed in which the PRNG is reseeded at each instance of input entropy and in which a standard timestamp variable used in determining random sequence outputs is replaced with a running counter. The method employed by the PRNG demonstrates increased resistance to iterative-guessing attacks and chosen-input attacks than those of previous technologies. The PRNG is suitable for use in, for example, a mobile telephone system for accomplishing secure communications.
MainClaim: A method for seeding a pseudo-random number generator (PRNG), comprising:

storing a plurality of state variables including an internal key, a seed value and a counter variable based on a hash output in an output buffer for use by a PRNG in determining a random number;

receiving successive input entropy signals;

clearing the output buffer upon receipt of each of said successive input entropy signals; and

calculating new state variables after receipt of each of said successive input entropy signals, wherein each of said successive input entropy signals comprise an input seed and said state variables comprise at least one constant expressed as a binary number, said calculating, in an initial state of the PRNG, further comprises:

receiving the input seed;

concatenating the input seed with a first constant;

determining a first output based on a hash of the concatenated input seed and the first constant;

concatenating the input seed with a second constant;

determining a second output based on a hash of the concatenated input seed and the second constant;

determining a key based on at least a portion of the first output, the key for determining a random number; and

determining a counter variable based on a portion of the second output, the counter variable for determining a random number.

2010/0098255	SYSTEM AND METHOD FOR A DERIVATION FUNCTION FOR KEY PER PAGE	Apple Inc.	Ciet; Mathieu | Farrugia; Augustin J. | Paun; Filip Toma	380	H04L	20081021	1	93%	☐
7,587,047	Chaos generator for accumulation of stream entropy	Apple Inc.	Crandall; Richard E. | Mitchell; Douglas P. | Krueger; Scott | Tribble; Guy	380	H04L	20050622	1	93%	☐

Abstract: A chaos generator for accumulating stream entropy is disclosed. The chaos generator includes a random source coupled to an entropy accumulator that is configurable for generating a binary random input sequence. The entropy accumulator is configurable for accumulating entropy of the input sequence and providing a binary random output sequence based on the accumulated entropy. The binary random output sequence is reduced by a modular reduction operation having a modulus that is set equal to a cryptographic prime (e.g., the order of an elliptic curve). The number of iterations performed by the entropy accumulator on the binary random input sequence is selected to provide a binary random output sequence having a desired cryptographic strength. The chaos generator can be part of a signing and verification system that uses fast elliptic encryption for small devices.
MainClaim: A digital hardware device, comprising: a pseudo-random source, implemented in hardware, configurable for generating a binary pseudo-random input sequence having a first entropy; and an entropy accumulator, implemented in hardware, coupled to the pseudo-random source and configurable for accumulating the first entropy and providing a binary pseudo-random output sequence based on the accumulated first entropy and a cryptographic prime.

2009/0319769	DISCRETE KEY GENERATION METHOD AND APPARATUS	Apple Inc.	BETOUIN; Pierre | Ciet; Mathieu | Farrugia; Augustin J.	713	H04L	20080521	2	93%	☐

Abstract: A computer enabled secure method and apparatus for generating a cryptographic key, to be used in a subsequent cryptographic process, where the key is to be valid only for example during a specified time period. The method uses a polynomial function which is a function of an input variable such as time, and dynamically computes the key from the polynomial. This is useful for generating decryption keys used for distribution of encrypted content, where the decryption is to be allowed only during a specified time period.
MainClaim: A computer enabled method to generate a key for a cryptographic process, there being a variable input value determining if a cryptographic key for the process is to be valid, comprising the acts of:providing a polynomial function of the input variable, whereby the polynomial is a predetermined value only within a range defined by the input variable;computing the key from the polynomial function; andusing the key in the cryptographic process.

7,702,097	Method and apparatus for authentication of data using different hash functions and feedback	Nokia Siemens Networks Oy	Yang; Fan | Koskivirta; Tero | Knuutila; Timo	380	H04K	20030814	0	100%	☐

Abstract: A method and apparatus for authentication of data includes inputting of data into a first layer of a hashing function for rotation based hashing, then inputting results from the first layer to a second layer of the hashing function for substitution based hashing. Feedback is provided from the second layer to the first layer and digests are output from the first and second layers.
MainClaim: A method for outputting digests from a sender to a receiver for data authentication, the method comprising: inputting, by a processor, data into a first layer of a hashing function for rotation based hashing; inputting, by the processor, results from the first layer to a second layer of the hashing function for substitution based hashing; providing, by the processor, feedback from the second layer to the first layer; and outputting, by the processor, digests, corresponding to the data, directly from the first layer to the receiver and directly from the second layer to the receiver for data authentication.

2009/0319769	DISCRETE KEY GENERATION METHOD AND APPARATUS	Apple Inc.	BETOUIN; Pierre | Ciet; Mathieu | Farrugia; Augustin J.	713	H04L	20080521	2	92%	☐

Abstract: A computer enabled secure method and apparatus for generating a cryptographic key, to be used in a subsequent cryptographic process, where the key is to be valid only for example during a specified time period. The method uses a polynomial function which is a function of an input variable such as time, and dynamically computes the

key from the polynomial. This is useful for generating decryption keys used for distribution of encrypted content, where the decryption is to be allowed only during a specified time period.
MainClaim: A computer enabled method to generate a key for a cryptographic process, there being a variable input value determining if a cryptographic key for the process is to be valid, comprising the acts of:providing a polynomial function of the input variable, whereby the polynomial is a predetermined value only within a range defined by the input variable;computing the key from the polynomial function; andusing the key in the cryptographic process.

7,533,065	Advanced method and arrangement for performing electronic payment transactions	Nokia Corporation	Piikivi; Lauri	705	G06Q	20020610	0	100%	☐

Abstract: The invention relates to a method and arrangement for making electronic purchases. In the method according to the invention, a creditor (11) grants to a customer (10) a certificate provided with an electronic signature, and the customer stores said certificate in an electronic device (13). In connection with a purchase transaction, the customer produces the certificate to an automatic service or goods vending machine (14), which checks the certificate information. If the information is accepted, the desired purchase can be made, and the purchase information is saved in the memory of the vending machine (14). The separate purchase information stored in the vending machine memory is transferred in one batch to the data system (12) of the creditor organization (11), when a predetermined criterion is fulfilled.
MainClaim: A method for making a purchase and paying for the purchase with a wireless electronic device, the method comprises: granting credit from a creditor to a customer, the granting of credit to the customer includes the creditor giving to the customer an electronic certificate, which is stored in the wireless electronic device of the customer, the electronic certificate including a commitment by the creditor to pay the purchase on behalf of the customer without checking a monetary balance of the customer during the purchase; using the electronic device in order to establish a wireless connection with an automatic service or goods vending machine, wherein the certificate granted by the creditor is partly encrypted by a symmetrical encryption key formed on the basis of information known both to the creditor and to the vending machine and information that can be calculated from data contained in the certificate; and wirelessly utilizing the electronic certificate contained in the electronic device when making the purchase in the automatic service or goods vending machine and verifying the authenticity of the certificate in the vending machine prior to delivering goods or services; whereafter the vending machine delivers the goods or services to the customer without checking the monetary balance of the customer based on the commitment and charges the creditor for the purchase after the goods or services are delivered.

2010/0078471	System and method for processing peer-to-peer financial transactions	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	235	G06Q	20080930	1	92%	☐

Abstract: Various techniques are provided for carrying out peer-to-peer financial transactions using one or more electronic devices. In one embodiment, a request for payment is transmitted from a first device to a second device using a near field communication (NFC) interface. In response to the request, the second device may transmit payment information to the first device. The first device may select a crediting account and, using a suitable communication protocol, may communicate the received payment information and selected crediting account to one or more external financial servers configured to process and determine whether the payment may be authorized. If the payment is authorized, a payment may be credited to the selected crediting account. In a further embodiment, a device may include a camera configured to obtain an image of a payment instrument. The device may further include an application to extract payment information from the acquired image.
MainClaim: A method for authorizing a payment in a peer-to-peer transaction comprising:receiving transaction information provided by a handheld electronic device;determining a payment account, a crediting account, and a payment amount from the received transaction information;determining whether the payment amount is authorized to be charged to the payment account; andif the payment amount is authorized to be charged from the payment account, crediting the crediting account for an amount corresponding to the payment amount.

2010/0082481	Peer-to-peer financial transaction devices and methods	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	1	92%	☐

Abstract: Various techniques are provided for carrying out peer-to-peer financial transactions using one or more electronic devices. In one embodiment, a request for payment is transmitted from a first device to a second device using a near field communication (NFC) interface. In response to the request, the second device may transmit payment information to the first device. The first device may select a crediting account and, using a suitable communication protocol, may communicate the received payment information and selected crediting account to one or more external financial servers configured to process and determine whether the payment may be authorized. If the payment is authorized, a payment may be credited to the selected crediting account. In a further embodiment, a device may include a camera configured to obtain an image of a payment instrument. The device may further include an application to extract payment information from the acquired image.
MainClaim: A method for receiving a payment in a peer-to-peer transaction using a handheld electronic device comprising:acquiring payment information on the handheld electronic device, the payment information comprising at least one payment account selected by a payor;determining a crediting account for receiving the payment; andobtaining

authorization for the payment.

2010/0078472	Group peer-to-peer financial transactions	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	235	G06Q	20080930	1	92%	☐

Abstract: Various techniques are provided for carrying out peer-to-peer financial transactions using one or more electronic devices. In one embodiment, a request for payment is transmitted from a first device to a second device using a near field communication (NFC) interface. In response to the request, the second device may transmit payment information to the first device. The first device may select a crediting account and, using a suitable communication protocol, may communicate the received payment information and selected crediting account to one or more external financial servers configured to process and determine whether the payment may be authorized. If the payment is authorized, a payment may be credited to the selected crediting account. In a further embodiment, a device may include a camera configured to obtain an image of a payment instrument. The device may further include an application to extract payment information from the acquired image.

MainClaim: A method for conducting a group transaction having a plurality of group transaction members on a handheld electronic device, the method comprising:acquiring a group invoice on the handheld electronic device, the group invoice comprising one or more group invoice items;paying the entirety of the group invoice using the handheld electronic device;determining a partial invoice for each group transaction member, each partial invoice including a payment amount owed by a respective group transaction member;providing each of the partial invoices to a respective group transaction member; andcollecting a payment from each of the group transaction members based on the payment amount included in each of the group transaction members' respective partial invoice.

6,222,924	Scrambling of digital media objects in connection with transmission and storage	Oy Nokia AB	Salomaki; Ari	380	H04K	19980818	0	100%	☐

Abstract: To prevent unauthorized reception, storage, copying and reproduction of digital media objects it is defined in addition to a scrambled broadcast format a scrambled storage format which is different from the broadcast format. A user's terminal equipment cannot receive, store or reproduce protected objects without a key which is advantageously a bit sequence stored on a portable memory medium and which can be different according to the type of use it gives entitlement to. To prevent the storing and later reproduction as such of data in the broadcast format, a time stamp is included in the broadcast format representing the time of broadcasting. A playback device cannot reproduce a broadcast-format object if the reproduction time differs from the time stamp included in the broadcast format. The reproduction time is advantageously read from a real time clock of a portable memory medium.

MainClaim: A method for handling a digital media object arranged to be protected against unauthorized use, wherein the digital media object is electrically distributable to several receivers and storable on a memory medium for later use and a scrambled broadcast format is defined for electrically distributing the digital media object, the scrambled broadcast format necessitating both knowledge about the appropriate descrambling algorithm and the possession of at least one descrambling key to enable it to be descrambled, the method comprising the steps of:

converting the digital media object into a scrambled storage format, which is different from said scrambled broadcast format and necessitates both knowledge about the appropriate descrambling algorithm and the possession of at least one descrambling key to enable it to be descrambled;

storing said digital media object in said scrambled storage format on a memory medium; and

determining, when the digital media object is reproduced to a user, if the difference between a timestamp included in the scrambled broadcast format and a timestamp of reproduction exceeds a predetermined maximum and preventing the digital media object from being reproduced if the difference exceeds the predetermined maximum.

6,523,113	Method and apparatus for copy protection	Apple Computer, Inc.	Wehrenberg; Paul J.	713	H04L	19981109	1	92%	☐

Abstract: Copy protection techniques that utilize a watermark and a permission key are disclosed. The copy protection techniques can provide single-copy copy protection in addition to different levels of copy protection. The permission key and the watermark can also permit the invention to yield variable levels of copy protection. In one embodiment, content including a watermark is transmitted to a recipient. The recipient is allowed to read the content but not record the content unless the recipient possesses a permission key.

MainClaim: A method of copy protecting content comprising:

receiving content to be recorded, the content including a watermark encoded in the content and the watermark indicating that the content is copy protected;

receiving an encrypted permission key;

decrypting the encrypted permission key providing a decrypted permission key;

extracting the watermark from the content;

comparing the decrypted permission key and the watermark to determine if the decrypted permission key and the watermark match; and

permitting the recording of the content if the decrypted permission key and the watermark match and otherwise prohibiting the recording of the content.

7,519,180	Method and apparatus for copy protection	Apple Inc.	Wehrenberg; Paul J.	380	H04N	20021220	1	92%	☐

Abstract: Copy protection techniques that utilize a watermark and a permission key are disclosed. The copy protection techniques can provide single-copy copy protection in addition to different levels of copy protection. The permission key and the watermark can also permit the invention to yield variable levels of copy protection. In one embodiment, content including a watermark is transmitted to a recipient. The recipient is allowed to read the content but not record the content unless the recipient possesses a permission key.

MainClaim: A method of copy protecting a content comprising: encoding a watermark in the content, wherein the watermark is not discernible by a recipient of the content, the watermark being indicative of a copy protection status of the content, wherein the watermark further indicates a level to which the content may be copied, and wherein the copy protection status of the content indicated by the watermark does not allow the recipient to record the content unless the recipient possesses a permission key that matches the watermark; transmitting the content with the encoded watermark to the recipient; and transmitting the permission key to the recipient, wherein the permission key is a variable permission key that varies over the transmission of the content and the encoded watermark such that more than one permission key is required to record the content and the encoded watermark, thereby allowing the recipient to record the content.

2003/0126445	Method and apparatus for copy protection	Apple Computer, Inc.	Wehrenberg, Paul J.	713	H04L	20021220	1	92%	☐

Abstract: Copy protection techniques that utilize a watermark and a permission key are disclosed. The copy protection techniques can provide single-copy copy protection in addition to different levels of copy protection. The permission key and the watermark can also permit the invention to yield variable levels of copy protection. In one embodiment, content including a watermark is transmitted to a recipient. The recipient is allowed to read the content but not record the content unless the recipient possesses a permission key.

MainClaim: A method of copy protecting a content comprising: encoding a watermark in the content, wherein the watermark is not significantly discernible by a recipient of the content, the watermark being indicative of a copy protection status of the content.

7,421,484	Automated bulk configuration of network devices	NOKIA, Inc.	Das; Debashis	709	G06F	20051229	0	100%	☐

Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A method, comprising: receiving a selection of a group of devices in a data communication network to be configured in accordance with a previously-stored common configuration profile, the devices of the group being situated in different locations within the data communications network, the common configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device; automatically opening a network connection with each of the devices of the group; automatically retrieving identifying data from each of the devices of the group; automatically mapping, for each device of the group and subsequent to receiving the selection, the retrieved identifying data to a corresponding one of multiple configuration profile deployment routine sets, wherein the retrieved identifying data of each device corresponds to a different configuration profile deployment routine set, and each configuration profile deployment routine set includes programming instructions to convert the configuration data from the common configuration profile into device-specific commands to configure the device having the corresponding retrieved identifying data; automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to the automatic mapping for that device and are generated using the previously-stored configuration data of the common configuration profile and the configuration profile deployment routine set corresponding to the identifying data for that device; and automatically transmitting the device-specific commands to each device of the group.

7,533,120	Method and apparatus for configuring a computer	Apple Inc.	Arrouye; Yan | Comiskey; John | Nebel; Chris | Ford; Richard | Guittet; Michel | Li; Alice	707	G06F	20060609	2	94%	☐

Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator, parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate

actions to modify the configuration as directed.
MainClaim: A method for configuring a computer, the method comprising: obtaining, over a network, from a server that is remote from said computer, a script having commands for configuring said computer; parsing said script; selecting, based on results of parsing said script, and from among a plurality of Plug-Ins, a Scripting Plug-In that maintains communication protocol-specific information that is not possessed by a Scripting Server that performs said parsing and said selecting; and forwarding said script to said Scripting Plug-In, wherein said Scripting Plug-In executes the commands to configure one or more network communication protocols of said computer.

2006/0242114	Method and apparatus for configuring a computer	Apple Computer, Inc,	Arrouye; Yan | Comiskey; John | Nebel; Christopher | Ford; Richard | Guittet; Michel | Li; Alice	707	G06F	20060609	2	93%	☐

Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator, parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate actions to modify the configuration as directed.
MainClaim: A method for configuring a computer comprising: obtaining a script having commands for configuring said computer; parsing said script to determine an appropriate Scripting Plug-In for said script; and forwarding said script to said Scripting Plug-In, wherein said Scripting Plug-In.

2007/0162574	Data serialization in a user switching environment	Apple Computer, Inc.	Williamson; Steve | Armstrong; Kevin	709	G06F	20060106	1	92%	☐

Abstract: A method for sharing a common computing system among multiple users is disclosed. A user can perform a login process during which an input data, such as a user name or a password can be entered by the user to access a session. The user name and/or the password are then serialized into an object or a set of objects. If the serialized object or objects are authentic, a session is created and the session properties of the session are defined. Any applications that are subsequently executed during the session remain active after the session is switched out.
MainClaim: A method of switching user sessions, the method comprising: retrieving user configuration data; receiving user input data; serializing the user input data and the user configuration data; deserializing the serialized user input data and user configuration data; and establishing a session based on the deserialized user input data and user configuration data.

7,013,331	Automated bulk configuration of network devices	Nokia, Inc.	Das; Debashis	709	G06F	20021220	0	100%	☐

Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.
MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising:

(a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device;

(b) automatically opening a network connection with each of the devices of the group;

(c) automatically retrieving identifying data from each of the devices of the group;

(d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set;

(e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device;

(f) automatically transmitting the device-specific commands to each device of the group;

(g) prior to step (a), providing a configured device having configuration parameters set in conformity with a desired

configuration; and

(h) subsequent to step (g), extracting configuration data from the configured device, wherein the extracted configuration data becomes the previously-stored configuration data of step (a), and wherein the previously-stored configuration data is stored in Extensible Markup Language (XML) format.

7,065,533	Method and apparatus for configuring a computer	Apple Computer, Inc.	Arrouye; Yan | Comiskey; John | Nebel; Chris | Ford; Richard | Guittet; Michel | Li; Alice	707	G06F	20030401	1	94%	☐

Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator, parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate actions to modify the configuration as directed.
MainClaim: A method for configuring a computer comprising: obtaining a database having at least one configuration settings for a computer; obtaining a script having commands for configuring said computer; parsing said script to determine an appropriate Scripting Plug-In for said script, wherein said Scripting Plug-In maintains knowledge of specific fields and methods of objects stored in said database; and forwarding said script to said Scripting Plug-In, wherein said Scripting Plug-In executes said commands thereby configuring said computer.

7,533,120	Method and apparatus for configuring a computer	Apple Inc.	Arrouye; Yan | Comiskey; John | Nebel; Chris | Ford; Richard | Guittet; Michel | Li; Alice	707	G06F	20060609	2	94%	☐

Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator, parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate actions to modify the configuration as directed.
MainClaim: A method for configuring a computer, the method comprising: obtaining, over a network, from a server that is remote from said computer, a script having commands for configuring said computer; parsing said script; selecting, based on results of parsing said script, and from among a plurality of Plug-Ins, a Scripting Plug-In that maintains communication protocol-specific information that is not possessed by a Scripting Server that performs said parsing and said selecting; and forwarding said script to said Scripting Plug-In, wherein said Scripting Plug-In executes the commands to configure one or more network communication protocols of said computer.

2006/0242114	Method and apparatus for configuring a computer	Apple Computer, Inc,	Arrouye; Yan | Comiskey; John | Nebel; Christopher | Ford; Richard | Guittet; Michel | Li; Alice	707	G06F	20060609	2	94%	☐

Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator, parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate actions to modify the configuration as directed.
MainClaim: A method for configuring a computer comprising: obtaining a script having commands for configuring said computer; parsing said script to determine an appropriate Scripting Plug-In for said script; and forwarding said script to said Scripting Plug-In, wherein said Scripting Plug-In.

			Alve; Jukka |					

6,959,090	Content Protection scheme for a digital recording device	Nokia Corporation	Mårtensson; Jan | Lidholm; Ola | Niemi; Valtteri | Tomberg; Juha | Kärkäs; Pasi | Pekonen; Harri | Suominen; Rami	380	H04L	20001120	0	100%	☐

Abstract: A recording device for digital data streams, such as digital TV broadcasts or digitized music, stores copies of program content encrypted by a key unique to the recording device. Distribution of program content is thus discouraged, since intelligible playback of program content would not be obtained on another recording device, which would have a different key. To reduce manufacturing complexity which would result from requiring all bits of a key to inhere in hardware, a first portion of the key inheres in hardware and a second portion is selected from among several candidates residing in a memory device, the key being determined by combining the first and second portions according to predetermined rules. The second portion is reselected at predetermined intervals from among the candidates. Only payload portions of packets are encrypted while header portions are left in the clear in order to facilitate ancillary functions of recorder such as fast forward, fast rewind, and program search.

MainClaim: A method of recording digital data, comprising:

receiving packets of a digital data stream in a recording and playback device;

encrypting the received packets in the recording and playback device according to an encryption key unique to the recording and playback device, wherein the recording and playback device includes a readout path for at least a portion of the encryption key, the readout path being connectable to an external IC tester;

storing the encrypted packets;

arranging the readout path to be disabled by a first irrevocable condition and to be re-enabled by a second irrevocable condition, and

arranging a path essential to functioning of the recording and playback device to be disabled by said second irrevocable condition.

2008/0165961	Protection of audio or video data in a playback device	Apple Computer, Inc.	Lerouge; Julien | Fasoli; Gianpaolo | Farrugia; Augustin J.	380	H04N	20070108	1	92%	☐

Abstract: Method and apparatus to prevent hacking of encrypted audio or video content during playback. Hackers, using a debugging attachment or other tools, can illicitly access encrypted data in memory in a playback device when the data is decrypted during playback and momentarily stored in digital form. This hacking is defeated here by methodically "poisoning" the encrypted data so that it is no longer playable by a standard decoder. The poisoning involves deliberate alteration of certain bit values. On playback, the player invokes a special secure routine that provides correction of the poisoned bit values, for successful playback.

MainClaim: A method of playing secure video or audio data on a playback device, comprising the acts of:receiving encrypted audio or video data from storage in the device;decrypting the data;parsing the decrypted data into portions;in each portion, detecting the values of at least one predetermined bit location or other indicator;if the detected value or indicator does not match a predetermined value, decoding the portion, and playing the coded portion;if the detected value matches the predetermined value or indicator, accessing a routine from a secure memory location in the playback device; anddecoding the portion using the routine and playing the decoded portion.

7,653,914	Handling different service versions in a server	Nokia Corporation	Krohn; Petri | Jaske; Harri	719	G06F	20020423	0	100%	☐

Abstract: This invention relates to handling of different service versions in a server that is connected to a communication network. The invention comprises means to load a desired version, two tables and additional data for handling different service versions. The first table contains service key and version information, and serialized service objects. The second table contains names of classes, version information and class files. The additional data is needed for loading the right class from among classes, with the same name, and mapping the right service object version to the right versions of classes.

MainClaim: A method comprising: grouping different versions of service applications and classes in at least one service repository into a first group comprising entries of service objects and a second group comprising entries of classes, forming the entries of the service objects in the first group to include a first information field for representing information about a version of a service and at least one service object, forming the entries of the classes in the second group to include a second information field for representing information about a version of the class, and mapping the service objects with the classes to provision the service applications, wherein the different versions of service applications include different versions of a same service application, and wherein the different versions of classes include different versions of a same class, wherein when executing a desired service application, the method further comprises searching for a service entry of a desired service application from the first group, loading a service object of the service entry of the desired service application from the first group for use by at least one server, using the mapping to discover entries of the classes of the second group associated with said service object of the service entry of the desired service application, and loading the entries of the classes of the second group associated with said service object of the service entry of the desired service application to the server.

	Method and apparatus for		Hsu; Karl | Jouaux; Francois | Kim; Ernest | Lue-						

2008/0235270	automatically providing network services	Apple Inc.	Sang; Ron | Turner; Melissa | Wendker; Andreas	707	G06F	20080527	1	95%	☐

Abstract: An embodiment of the invention is directed to a method and apparatus for automatically providing network services in a way that improves upon the prior art. Systems implementing aspects of the invention can, for instance, provide developers with a mechanism for creating Web Services without having to write low-level SOAP, XML, or WSDL code. The system utilizes a rule-based approach to provide a mechanism for dynamically reconfiguring the system with requiring redeployment of the entire system.
MainClaim: A network services assistant embodied in a computer program executed in a tangible medium of expression, the computer program comprising computer program code configured to:analyze a database schema of a database to determine a hierarchical structure of at least a portion of the database;generate based at least in part on the analysis of the database schema a set of rules associated with the database; andstore the set of rules in a manner that makes the set of rules available to a rule engine configured to implement them.

7,457,815	Method and apparatus for automatically providing network services	Apple Inc.	Hsu; Karl | Jouaux; Francois | Kim; Ernest | Lue-Sang; Ron | Turner; Melissa | Wendker; Andreas	707	G06F	20030327	1	95%	☐

Abstract: An embodiment of the invention is directed to a method and apparatus for automatically providing network services in a way that improves upon the prior art. Systems implementing aspects of the invention can, for instance, provide developers with a mechanism for creating Web Services without having to write low-level SOAP, XML, or WSDL code. The system utilizes a rule-based approach to provide a mechanism for dynamically reconfiguring the system with requiring redeployment of the entire system.
MainClaim: A network services assistant computer program in a storage medium comprising computer program code executed by a processor to: obtain a database schema of a database; analyze said database schema to determine a hierarchical structure within a plurality of database fields in said database; integrate a user input and the hierarchical structural information from the analysis of said database schema; generate programmatically based on the integrated user input and the hierarchical structural information a set of operation rules for utilizing said database fields, the set of operation rules for utilizing said database fields comprising one or more rules for examining one or more of database specific, table specific, and field specific privileges; generate a set of operation rules for translating an output of a query to said database into one of a plurality of data communication languages; and store said set of operation rules for utilizing said database fields and said set of operation rules for translating an output of a query to said database into one of a plurality of data communication languages in a manner that makes the respective sets of operation rules available to a rule engine configured to implement them.

2008/0307394	Asynchronous load of source dependencies	Apple Inc.	Marchant; Benoit	717	G06F	20070608	3	94%	☐

Abstract: Asynchronous loading of source dependencies is disclosed. An indication is received in the course of executing a script that a source file on which a current class or function depends is not available. Execution of remaining portions of the script, if any, that do not depend on the source file, continues, or other processing tasks are performed if no such portions remain, while the source file is loaded asynchronously.
MainClaim: A method of loading source files, comprising:receiving, in the course of executing a script, an indication that a source file on which a current class or function depends is not available; andcontinuing execution of remaining portions of the script, if any, that do not depend on the source file, or continuing on to other processing tasks if no such portions remain, while the source file is loaded asynchronously.

7,657,734	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo | Saksio; Mauri | Molin; Sakari	713	G06F	20060822	0	100%	☐

Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.
MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer will assume when the computer is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason; wherein the computer state manager comprises a recovery system for recovering the computer from a fault condition; the pre-determined reason for re-starting the computer comprises an occurrence of a fault condition; and the particular functional mode comprises a fault recovery functional mode.

2007/0186090	Method and apparatus for enabling a computer system	APPLE COMPUTER, INC.	Yu; Dean T. | Derossi; Christopher S.	713	G06F	20061221	1	92%	☐

Abstract: A system and method for utilizing generic computer operating system software for computer hardware systems designed subsequent to the operating system software. The system and method of the present invention

employs a separate modular software file called a System Enabler that has all patches, code, data and resources needed to make a particular computer system operational. The System Enabler file is matched to a particular hardware system and may be bundled with that hardware system. During computer system start up the System Enabler file modifies the generic operating system software for optimum operation with the particular computer hardware system.
MainClaim: A computer system including operating system software configurable for controlling different computer hardware, comprising: (a) a processor; (b) at least one storage device; (c) a software operating system operable in a plurality of different computer hardware configurations, the software operating system having modifiable system initialization information stored in the at least one storage device; and (d) a system enabler containing information for configuring the software operating system for a computer hardware configuration.

7,484,127	Method and system for preserving crash dump in a diskless system	Nokia Siemens Networks OY	Babu; Venkatesh	714	G06F	20050113	0	100%	☐

Abstract: The invention discloses a method for preserving crash dump data in case of operating system crash in a diskless device. The method and the system according to the invention uses two stage booting where in a primary and a secondary kernel are loaded. The primary kernel is a compact kernel that comprises a limited set of functionality and the secondary kernel is a fully functional kernel used for running applications. In case of a crash of the secondary kernel, the kernel prepares a jump back to the primary kernel. Then the primary kernel preserves the crash dump support data and secondary kernel's RAM contents by sending it to a remote system which can store it on a nonvolatile memory.
MainClaim: A method, comprising: loading and booting a primary operating system kernel; preparing environment for booting a secondary operating system kernel by said primary kernel; loading and booting a secondary operating system kernel, wherein both said primary kernel and said secondary kernel are loaded and booted before a crash; in case of a crash, preparing said secondary kernel for jumping back to said primary kernel; and preserving crash dump data and jumping back to said primary kernel for storing the preserved data.

2009/0031102	MAPPING AN N-BIT APPLICATION PORTED FROM AN M-BIT APPLICATION TO AN N-BIT ARCHITECTURE	APPLE INC.	Peak; Christopher G. | Scheinberg; Martin | Sokol, JR.; Joseph	711	G06F	20080930	1	93%	☐

Abstract: Embodiments of the present invention provide a system that maps an N-bit application to virtual memory. The N-bit application may be obtained by porting an M-bit application to an N-bit architecture where N is greater than M. During operation, the system receives a request to map an N-bit application to a computer's virtual memory. The system then maps the N-bit application to a section of virtual memory which begins at a memory address that is greater than or equal to 2^M. If the N-bit application accesses a memory address which is less than 2^M, the system can generate a trap, thereby facilitating the discovery of M-bit memory references in the N-bit application.
MainClaim: A method for mapping an N-bit application to a computer's virtual memory, wherein the N-bit application was obtained by porting an M-bit application to an N-bit architecture, wherein N is greater than M, the method comprising:receiving a request to map an N-bit application to a computer's virtual memory; andmapping the N-bit application to a section of virtual memory which begins at a memory address that is greater than or equal to 2^M;wherein if the N-bit application accesses a memory address which is less than 2^M, the computer generates a trap, thereby facilitating the discovery of M-bit memory references in the N-bit application.

7,451,298	Processing exceptions from 64-bit application program executing in 64-bit processor with 32-bit OS kernel by switching to 32-bit processor mode	Apple Inc.	Peak; Christopher G. | Scheinberg; Martin | Sokol, Jr.; Joseph	712	G06F	20060803	1	93%	☐

Abstract: One embodiment of the present invention provides a system that uses an M-bit operating system (OS) kernel to support N-bit user processes. During operation, the system receives an exception. Note that the exception can be any event that needs to be handled by executing OS kernel code. Specifically, the exception can be a hardware interrupt, a software interrupt, an asynchronous interrupt, a synchronous interrupt, a signal, a trap, or a system call. Next, the system handles the exception by first switching the processor to the M-bit mode, and then executing M-bit OS kernel code which is designed to handle the exception. Note that the processor may primarily be designed to operate in the N-bit mode; the M-bit mode may primarily be provided for backward compatibility reasons.
MainClaim: A method for using an N-bit aware M-bit operating system (OS) kernel to execute an N-bit user process, wherein N is greater than M, and wherein the M-bit OS kernel executes on a processor that can switch between an N-bit mode and an M-bit compatibility mode, the method comprising: receiving an exception that occurred during the execution of the N-bit user process in the N-bit mode; and handling the exception using the M-bit OS kernel by: executing N-bit code to switch the processor to the M-bit compatibility mode; and executing M-bit OS kernel code to service the exception.

7,359,724	Method and system for location based group formation	Nokia Corporation	Torvinen; Marko	455	H04B	20031120	0	100%	☐

Abstract: In one embodiment, a method and system allows organization terminal (402) to define a group session based upon location and other criteria associated with participating terminals (410). Location criteria may include cell definition (110), group definition (126), and/or sub-group definition (130). Various components (404-408) may be utilized to perform application/location/management functions to determine the qualifications of each terminal of terminal group (410) to join the group. Once terminals (410) have been pre-qualified based upon their location and other group

criteria, terminals (410) may accept an invitation to join the location based group session and begin application sharing, group chat sessions, and downloading as required to facilitate the location based group session.
MainClaim: A method of conducting location based group sessions within a cell based network, comprising: defining a region of interest using a mobile terminal, the region of interest being used as a group session area; defining criteria using a mobile terminal, the criteria being used to determine minimum capabilities required of group attendees; identifying potential group attendees whose location is within the group session area and whose capabilities meet the criteria; and inviting the potential group attendees to join the location based group session.

2008/0085707	Dynamic Carrier Selection	Apple Inc.	Fadell; Tony	455	H04Q	20061010	3	94%	☐

Abstract: Systems, methods, computer software for providing access to wireless communication services are provided. The invention, in one embodiment, can involve storing a network address on a mobile device and sending a request for network operator data from the mobile device to a mobile virtual network operator server associated with the network address. In response, network operator data is received, and, based on the received network operator data, a network operator is selected. Communications are thereafter conducted using the selected network operator. In some situations, bids are received from multiple network operators for rates at which communication services using each network operator can be obtained. Preferences among the network operators are identified using the received bids, and the preferences are used to select the network operator for the mobile device to use in conducting communications.
MainClaim: A method for providing access to a wireless cellular communication network, the method comprising:storing a network address on a mobile device, wherein the network address identifies a mobile virtual network operator server storing mobile network operator data for use by the mobile device;receiving network operator data from the mobile virtual network operator server;selecting a network operator for the mobile device to use for communications based on the received network operator data; andconducting communications with the selected network operator.

7,478,146	System, apparatus, and method for communicating capabilities of a mobile device	Nokia Corporation	Tervo; Timo P. | Lindroos; Martti	709	G06F	20031103	0	100%	☐

Abstract: The present disclosure relates to a system, apparatus, and method for providing services usable by a mobile terminal. In one embodiment, a method involves initiating a device startup sequence of a mobile computing arrangement. A capability descriptor of the mobile computing arrangement is communicated to a service provider entity as part of the startup sequence. A data service targeted for the mobile device based on the capability descriptor communicated to the service provider, and the data service is then initiated with the mobile computing arrangement.
MainClaim: A method comprising: initiating a device startup sequence of a mobile computing arrangement, wherein the device startup sequence comprises at least one of a hardware initialization of the mobile computing arrangement and a network registration of the mobile computing arrangement; communicating a capability descriptor of the mobile computing arrangement to a service provider entity as part of the startup sequence and before a user-initiated network session with the service provider entity is requested via the mobile computing arrangement; receiving, from the service provider independently of user requests, a data service targeted for the mobile computing arrangement based on the capability descriptor communicated to the service provider; and utilizing the data service at the mobile computing arrangement in accordance with the capability descriptor.

2009/0061840	CARRIER CONFIGURATION AT ACTIVATION	Apple Inc.	Fleischman; David | Coffman; Patrick | Wyld; Jeremy | Cassidy; Brian | Christie; Gregory N.	455	H04M	20080902	6	94%	☐

Abstract: Methods, systems, and computer-readable medium for providing telecommunications carrier configuration at activation of a mobile device. In one implementation, a method is provided. The method includes receiving a request for activation of a mobile device, and during activation of the mobile device, determining for the mobile device a telecommunications carrier from a number of telecommunications carriers, and identifying information associated with the determined telecommunications carrier for configuring the mobile device.
MainClaim: A method comprising:receiving a request for activation of a mobile device; andduring activation of the mobile device:determining for the mobile device a telecommunications carrier from a number of telecommunications carriers; andidentifying information associated with the determined telecommunications carrier for configuring the mobile device.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	93%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

7,352,997	Method, apparatus and system for hosting a group of terminals	Nokia Corporation	Torvinen; Marko	455	H04B	20030814	0	100%	☐

Abstract: A method, apparatus, and system allowing terminal hosted group activities is provided, whereby proximity and non-proximity connections between a hosting mobile terminal and participating terminals enables group hosting activity. The hosting mobile terminal guides information flow between itself, the participating terminals, and optionally, with network servers that may assist the hosting mobile terminal. The hosting mobile terminal provides group management, profiling, downloading, presence, gaming, payment/charging, and authentication functions either in terminal only mode, or alternatively in conjunction with server assistance.
MainClaim: A method of conducting group hosting functions using a mobile terminal, comprising: establishing a wireless connection between the mobile terminal and a plurality of participating terminals; receiving messages from the plurality of participating terminals that relate to a common activity between the plurality of participating terminals; providing services to the plurality of participating terminals in response to the messages, wherein the mobile terminal facilitates the services provided; and providing a starting page, hosted by the mobile terminal, containing markup content to the plurality of participating terminals.

2009/0061840	CARRIER CONFIGURATION AT ACTIVATION	Apple Inc.	Fleischman; David | Coffman; Patrick | Wyld; Jeremy | Cassidy; Brian | Christie; Gregory N.	455	H04M	20080902	6	93%	☐

Abstract: Methods, systems, and computer-readable medium for providing telecommunications carrier configuration at activation of a mobile device. In one implementation, a method is provided. The method includes receiving a request for activation of a mobile device, and during activation of the mobile device, determining for the mobile device a telecommunications carrier from a number of telecommunications carriers, and identifying information associated with the determined telecommunications carrier for configuring the mobile device.
MainClaim: A method comprising:receiving a request for activation of a mobile device; andduring activation of the mobile device:determining for the mobile device a telecommunications carrier from a number of telecommunications carriers; andidentifying information associated with the determined telecommunications carrier for configuring the mobile device.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	93%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

6,757,722	System and method for providing partial presence notifications	Nokia Corporation	Lonnfors; Mikko | Leppanen; Eva-Maria | Costa-Requena; Jose	709	G06F	20020716	0	100%	☐

Abstract: A system and method for communicating partial notifications relating to a presentity's presence information. The communication may be effected between presence servers and terminals coupled to the presence servers via a network. At least one presentity is identified to which a terminal has requested presence services. A presence document is created, where the presence document includes presence information corresponding to the presentity. The presence information is configured as partial presence information comprising less than a total of the presence information available for the presentity. The presence document having the partial presence information is communicated to the terminal requesting the presence information.
MainClaim: A method for communicating presence information between presence servers and terminals coupled to the presence servers via a network, the method comprising:

identifying at least one presentity to which a terminal has requested presence services;

creating a presence document including presence information corresponding to the presentity;

configuring the presence information as partial presence information comprising less than a total of the presence information available for the presentity; and

communicating the presence document having the partial presence information to the terminal requesting the presence information.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	93%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established;

subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,656,847	Method and apparatus for utilizing bluetooth for WLAN service authentication and discovery	Nokia Corporation	Mela; Martti | Vehmanen; Kai | Jalava; Teemu	370	H04W	20040629	0	100%	☐

Abstract: A device having wireless connectivity may be coupled to Internet Protocol (IP) service available in a network, including a wireless local area network (WLAN), local area network (LAN), Ethernet or other suitable Internet access point, by broadcasting a wireless protocol service discovery query requesting information about the IP service available in the network and waiting for a reply from another device having wireless connectivity in the network. The device includes a wireless protocol service discovery query module that broadcasts the wireless protocol service discovery query and waits for the reply from the second device. The scope of the invention also includes a network having such devices with the features described above, as well as a computer program product with a program code that is stored on a machine readable carrier, for carrying out the steps according to the aforementioned method when the computer program is run in a processor module of the first device.
MainClaim: A method comprising: transmitting from a first device over a first short-range radio link using a first short-range communicating protocol a wireless protocol service discovery query requesting information about an Internet Protocol based service available within a wireless network; receiving a reply to the wireless protocol service discovery query from a second device connected to the wireless network over the first short-range radio link using the first short-range communication protocol, the reply including at least an Internet Protocol address of a particular node, point, terminal or device providing the Internet Protocol based service within the wireless network; negotiating parameters needed for establishing communications with the particular node, point, terminal or device providing the Internet Protocol based service within the wireless network over a second short-range radio link using a second short-range communication protocol with said second device over the first short-range radio link; and transmitting a service query including at least the received Internet Protocol address for establishing communications with the particular node, point, terminal or device providing the Internet Protocol based service within the wireless network, wherein the service query is transmitted over the second short-range radio link using the second short-range communications protocol in accordance with the negotiated parameters, wherein the second short-range communication protocol is different than the first short-range communication protocol.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	92%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

7,346,341	Providing mobile-specific services for mobile devices via ad-hoc networks	Nokia Corporation	Costa-Requena; Jose | Espigares; Inmaculada	455	H04Q	20041210	0	100%	☐

Abstract: Mobile-specific services are provided to a mobile device coupled to a local area network. The local area network provides ad-hoc connectivity between consumer electronics devices. A service provider device is coupled to the local area network. A mobile-specific service is provided at least in part by the service provider device. The mobile-specific service is advertised via the local area network. The mobile device subscribes to the mobile-specific service via the local area network in response to advertising of the mobile-specific service. The mobile device utilizes the mobile-specific service via the local area network.
MainClaim: A method comprising: coupling a mobile device to a local area network that provides ad-hoc connectivity between consumer electronics devices; advertising, via discovery protocols of the local area network, a mobile-specific service that is provided at least in part by a service provider device that is capable of being coupled to the network as a peer of the mobile device, wherein the mobile specific service comprises a Voice over IP service that is provided via an external mobile communications network; receiving at the service provider device, a request from the mobile device to subscribe to the mobile-specific service in response to advertising of the mobile-specific service; and providing the mobile-specific service to the mobile device via the service provider device in response to the request, wherein the service provider device bridges the Voice over IP service between the mobile device and the external mobile communications network.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	93%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

6,760,601	Apparatus for providing information services to a telecommunication device user	Nokia Corporation	Suoknuuti; Marko | Rautila; Heikki	455	H04Q	19991129	0	100%	☐

Abstract: An apparatus for providing information services to a user includes a microserver disposed at the user's home or office. The microserver is connected to a communication network which is connected to a global computer network, and the user's mobile or fixed telephone terminal. At least one service server is connected to the user's mobile or fixed terminal via the global computer network, the communication network and the microserver. Through the disposition of microserver at the user's primary location, the service server can transmit general or user specific service information to the user via their mobile and/or fixed terminal. The problems of localization of the user are eliminated by the implementation of the microsever at the user's primary communication location.
MainClaim: An apparatus for providing information services to a telecommunication device of a user wherein at least one service provider is connected to a global network of computers and the global network of computers is connected to a communication network to which the user has access, the apparatus comprising:

a microserver disposed in a user selected location and connected to the communication network, said microserver comprising a communication protocol means for providing a connection between the microserver and the user's telecommunication device and means for automatically initiating communications between said microserver and the at least one service provider, said means for automatically initiating communications comprising means for contacting said at least one service provider using a handshake procedure to communicate registration information between said microserver and said at least one service provider and to register said microserver with said at least one service provider to indicate readiness to receive service information from said at least one service provider, said registration information comprising information relating to a location of said microserver,

said microserver further comprising means for automatically receiving and storing service information from said at least one service provider, wherein said service information is based on said registration information, means for notifying the user of the presence of the received service information, and means for transmitting the service information from said at least one service provider to the user's telecommunication device via the global network of computers and the communication network.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	93%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,555,287	Customized messaging between wireless access point and services	Nokia Corporation	Heinonen; Tomi | Laitinen; Timo M.	455	H04M	20011101	0	100%	☐

Abstract: A method is disclosed for facilitating the preparation of customized messaging between a wireless access point and a variety of service platforms. The wireless access point includes a registry of trigger words, each word specifying the particular events that must be detected by the access point upon receiving a packet from a mobile wireless device, in order to invoke the process of sending a corresponding server message to a selected server. When

the wireless packet is received by the access point, the access point uses the various types of information in the received packet as stimuli to be matched with the trigger words stored in the trigger word registry. If there is a match, then a customized message corresponding to the matched trigger word is accessed from a customized message registry and sent to the server specified in the message. The server uses this information for an appropriate query of its database to access the content. The content is then used for a particular application or returned to the access point for communication to the mobile device. The wireless access point includes management software to present to the system administrator on a connected personal computer, a management menu of example trigger words and example server messages. The management software provides an editor to enable the administrator to optionally customize the example trigger words and/or server messages to suit particular applications.
MainClaim: A method, comprising: providing a customized message in a wireless access point; providing a customized trigger word including a specification of an address of a wireless device to be detected, a specification of a type of the wireless device, and a specification of a time of day that must exist when an event is detected; enabling the access point to detect events specified by the customized trigger word, wherein the events include receiving a signal from a wireless device within a coverage area of the access point, the signal indicating a type of the wireless device and an address of a wireless device; using the customized trigger word to access the customized message; and using said trigger word to invoke sending the customized message to a content server, in response to said detected events occurring with a time of day that is the same as the time of day specified in the customized trigger word.

2010/0070758	Group Formation Using Anonymous Broadcast Information	Apple Inc.	Low; Daryl Mun-Kid | Huang; Ronald Keryuan | Mishra; Puneet | Jain; Gaurav | Gosnell; Jason | Bush; Jeff	713	H04L	20080918	2	92%	☐

Abstract: A number of devices co-located at a geographic location can broadcast and receive tokens. Tokens can be exchanged using a communication link having limited communication range. Tokens that are received by a device can be stored locally on the device and/or transmitted to a trusted service operating remotely on a network. In some implementations, the tokens can be stored with corresponding timestamps to assist a trusted service in matching or otherwise correlating the tokens with other tokens provided by other devices. The trusted service can perform an analysis on the tokens and timestamps to identify devices that were co-located at the geographic location at or around a contact time which can be defined by the timestamps. A group can be created based on results of the analysis. Users can be identified as members of the group and invited to join the group.
MainClaim: A method comprising:receiving tokens and corresponding timestamps from devices;identifying devices that have exchanged one or more tokens at a time, or in a time frame, determined by the timestamps;identifying users associated with the identified devices; andcreating a group for the identified users.

7,263,086	Method and system for providing location-based services in multiple coverage area environments	Nokia Corporation	Viikari; Jere | Forstadius; Antti | Ginman; Tommy	370	H04Q	20021112	0	100%	☐

Abstract: A resource request that is originated by a short-range wireless communications device originates a request. A location indicator is added to the resource request that identifies a location of the WCD. The location indicator is based on a coverage area within an access point that forwarded the resource request. Then, the resource request is forwarded to a content server.
MainClaim: A method of obtaining location-based information services, comprising: (a) receiving a resource request from an access point having a plurality of coverage areas, the resource request originated by a short-range wireless communications device (WCD) within one of the plurality of coverage areas; (b) adding to the resource request a location indicator that identifies a location of the WCD, wherein the location indicator is based on said one coverage area; and (c) forwarding the resource request to a content server; said location indicator being one of a plurality of location indicators, each of which is capable of respectively identifying a location of the WCD within a respective one of said plurality of coverage areas of said access point.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	94%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

7,366,523	Method and system for providing location-based services	Nokia Corporation	Viikari; Jere | Forstadius; Antti	455	H04Q	20021112	0	100%	☐

Abstract: A resource request that is originated by a short-range wireless communications device originates a request. A location indicator is added to the resource request that identifies a location of the WCD. The location indicator is based on a location of an access point that forwarded the resource request. Then, the resource request is forwarded to a

content server.
MainClaim: A method of obtaining location-based information services, comprising: (a) receiving a resource request without physical location information from an access point, which is in a network of a plurality of access points, the resource request originated by a wireless communications device (WCD) located within a coverage area of the access point, the WCD communicating with the access point over a wireless short-range communications link, wherein the resource request includes a resource identifier in a form of a Uniform Resource Locator (URL) and an access point identifier appended by the access point, the access point identifier distinguishing the access point from other ones of the plurality of access points in the network; b) accessing a location manager database remote from the access point, said location manager database maintaining an association between a physical location of the access point and the access point identifier, to determine the physical location of the access point that corresponds with the received access point identifier the physical location being assigned to the WCD communicating with the access point, as representing the physical location of the WCD; c) appending the physical location at the location manager database, into the URL of the resource request; and d) forwarding the appended resource request to a data network for receipt by a content server identified by the URL.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	93%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

7,103,018	Method of and a network for handling wireless session protocol (WSP) sessions	Nokia Corporation	Hansen; Hans | Hansen; Lars	370	H04Q	19990427	0	100%	☐

Abstract: A communication terminal initiates a Wireless Session Protocol (WSP) session by forwarding a request of data to a server. The request comprises an identification of the requested data and a communication terminal identification number provided by the server. The server. when receiving a request containing a communication terminal identification number, recalls user profile information from an associated database memory corresponding to said communication terminal identification number. The user profile information indicates a data format which will be handled by the communication terminal. Then the server replies to the request by forwarding the requested data in the format defined by the user profile information.
MainClaim: A method of handling Wireless Session Protocol (WSP) sessions between a wireless communication terminal and a corresponding server, wherein: the communication terminal initiates a session by forwarding a request for earlier requested data to the server, comprising an identification of the earlier requested data and a communication terminal identification number provided by the server; the server, when receiving a request containing the earlier requested data and the communication terminal identification number, recalls user profile information from an associated database memory corresponding to said communication terminal identification number, and said user profile information indicates a data format which will be handled by the communication terminal for the earlier requested data; and the server replies to the request for earlier requested data by forwarding the earlier requested data in the format defined by the user profile information.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,228,153	Apparatus for providing information services to a telecommunication device user	Nokia Corporation	Suoknuuti; Marko | Rautila; Heikki	455	H04Q	20040702	0	100%	☐

Abstract: An apparatus for providing information services to a user includes a microserver disposed at the user's home or office. The microserver is connected to a communication network which is connected to a global computer network, and the user's mobile or fixed telephone terminal. At least one service server is connected to the user's mobile or fixed terminal via the global computer network, the communication network and the microserver. Through the disposition of microserver at the user's primary location, the service server can transmit general or user specific service information to the user via their mobile and/or fixed terminal. The problems of localization of the user are eliminated by the implementation of the microsever at the user's primary communication location.
MainClaim: An apparatus for providing an interface to a communication network for a telecommunication device for a mobile user, the communication network having a plurality of connection points, the apparatus comprising a portable microserver including first connection means for establishing a communication connection to the communication network by any of the connection points, such that the portable microserver is movable to any of the connection points by the mobile user, and for automatically initiating communications between said portable microserver and a server of at least one service provider through the communication network, upon connection of the portable microserver to one of the connection points, an address of the server being stored by the portable microserver, and second connection means for establishing a communication connection with the telecommunication device of the mobile user, the portable microserver operable for interfacing with the communication network and transferring and routing communications between the communication network and the telecommunication device.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	94%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

6,708,206	Apparatus, and associated method, for providing a client with messages	Nokia Corporation	Thrane; Leon | Szondy; Gyorgy	709	G06F	20000503	0	100%	☐

Abstract: Apparatus, and an associated method, provides OOB (out-of-band) and other asynchronous messages to a mobile client. OOB and other asynchronous messages formed of alerts, notifications, push messages, advertising, as well as many other types of messages, are able to be provided to the client. The OOB and other asynchronous messages are provided to the client by a gateway, such as a WAP gateway operable in a communication system pursuant to the WAP standard.
MainClaim: In a communication system having a client operable to communicate with an origin server by way of a communication path, an improvement of apparatus for facilitating communication of an asynchronous message upon the communication path to the client, said apparatus comprising:

a request detector coupled to receive a first client-generated request for content from the origin server;

a filter coupled to receive the requested content when it is communicated from the origin server, the filter operable to identify within the requested content links for use by the client in requesting additional content;

an out-of-band message source coupled to receive at least one out-of-band message relating to the additional content, the at least one out-of-band message selectably to be communicated to the client;

a selector coupled to said out-of-band message source for selecting whether to communicate to the client the at least one out-of-band message relating to the additional content; and

a push message generator operable responsive to detection by said request detector of a second client-generated request, the second client-generated request requesting the additional content, the push message generator for sending a push message relating to the requested additional content upon the communication path to the client, the push message forming the asynchronous message.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established;

subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,363,354	System and method for identifying and accessing network services	Nokia Corporation	Lahti; Jerry	709	G06F	20011129	0	100%	☐

Abstract: A system and method for facilitating mobile terminal access to a particular network application available via multiple application servers on a network. An application identifier corresponding to the network application, and associated application access parameters including an application server address of one of the multiple applications servers, is embedded into provisioning information. The provisioning information is transmitted to at least one mobile terminal in connection with a provisioning procedure. The mobile terminal is provisioned to facilitate access to the network application via the application server identified by the application server address provided with the provisioning information.
MainClaim: A method for facilitating mobile terminal access to a network application that is hosted by a plurality of application servers on a network, comprising: embedding an application identifier corresponding to the network application, and associated application access parameters including an application server address of one of the plurality of applications servers, into provisioning information; transferring the provisioning information to at least one mobile terminal in connection with a provisioning procedure associated with establishing basic network connectivity for the at least one mobile terminal; and provisioning the mobile terminal to facilitate access to the network application via the application server identified by the application server address provided with the provisioning information.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,729,700	Vertical network handovers	Nokia Corporation	Alemany; Juan | Frivold; Thane | Kelm; Andy | Lancaster; Darren	455	H04W	20040607	0	100%	☐

Abstract: Establishing and controlling communication to and from a mobile terminal with multiple network interfaces that can be reached with one phone number via multiple networks. The mobile terminal simultaneously communicates with a central server over a cellular network and a WLAN to dynamically coordinate a preferred routing of a communication session with a partner node. The communication session is routed over whichever network is optimal at any given time, depending on a current location of the mobile device, current performance of each network, and other criteria. A new communication session is established through the central server to enable one number access to and from the mobile terminal. An ongoing communication session is continuously monitored to determine whether and when to perform a network handover. The mobile terminal obtains performance data regarding each network and arranges a network handover with the central server.
MainClaim: A method comprising: (a) determining that an initial communication link via an initial wireless network between a central server and a first wireless interface of a mobile terminal is undesirable, wherein the central server is in communication with a partner node, enabling a communication session between the mobile terminal and the partner node through a first secret identifier of the mobile terminal; (b) establishing a different communication link via a different wireless network between the central server and a second interface of the mobile terminal through a second secret identifier of the mobile terminal; (c) causing the communication session to be switched from the initial communication link to the different communication link thereby rerouting the communication session between the mobile terminal and the partner node, wherein the first and second secret identifiers are associated with a single public identifier of the mobile terminal.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

	AND VOIP SERVICES								

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,574,174	Apparatus, method and system for a remote-page device	Nokia Corporation	Heinonen; Tomi | Laitinen; Timo M. | Ginman; Tommy | Perala; Timo K.	455	H04B	20020710	0	100%	☐

Abstract: An apparatus, method, and system for a remote-page devices. Communications are made more efficient with a connectivity tool. Remote-page enabled clients allow a short-range RF device to communicate beyond its coverage area or that of a nearby access point. Such a remote-page enabled client may issue remote-page messages and send them to remote-page enabled access points, which will ultimately route the message to a desired target client beyond the coverage area of the original client. The disclosure further teaches a remote-page enabled access point that may accept remote-page messages from clients and pass them on to remote access points that are communicating with the desired target device. The disclosure also teaches a remote-page server that tracks specified remote-page enabled access points and all clients disposed in communication with the access points. The remote-page server allows access points to query it for the existence of desired target devices and provides information relating to the existence of any such target devices. Information provided from a remote-page server to an access point allows the access point to establish a communications channel with a remote access point and act as a conduit for communications between an original client and a desired target client. This allows for client devices to not only communicate with devices outside of their given RF coverage area, but to also communicate across a communications network with other types of devices.
MainClaim: A method, comprising: sending a remote paging signal to an originating wireless access point from an originating device over a wireless short-range communication link, wherein the remote paging signal is destined to a remote target device located beyond a coverage area of the originating device for establishing a communications connection between the originating device and the remote target device, wherein the remote paging signal includes at least an address of the remote target device; receiving a paging response signal from the originating wireless access point over the wireless short-range communication link, wherein the paging response signal is effected from the remote target device; and establishing, through the originating wireless access point and a remote wireless access point, the communications connection between the originating device and the remote target device, wherein the communications connection comprises a wireless short-range connection between the originating device and the originating wireless access point, a wireless short-range connection between the remote target device and the remote wireless access point, and a direct connection between the originating wireless access point and the remote wireless access point.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	93%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

2010/0081385	Peer-to-peer host station	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	455	H04B	20080930	2	92%	☐

Abstract: A method and system is disclosed for allowing the sharing of one or more system resources between multiple devices. In one embodiment, a requesting device transmits a resource access request to a target device using a near-field communication (NFC) protocol. The target device responds by using the NFC connection to return a listing of resources available for sharing to the requesting device. The requesting device may select one or more of the available resources and establish an appropriate connection to access the selected resource or resources. In one embodiment, the requesting device may lack external network connectivity capabilities while the target device includes wi-fi connectivity as a shared resource. Accordingly, the requesting device may access external network of the target device via the target as a conduit.

MainClaim: An electronic device, comprising:a communication interface adapted to provide one or more network connections for connecting the electronic device to one or more networks; anda near field communication (NFC) interface adapted to utilize one of the one or more network connections for connecting the electronic device to at least one secondary device, wherein the one of the one or more network connections provides, to the secondary device, access to one or more external networks of the electronic device.

6,813,496	Network access control	Nokia Corporation	Numminen; Raili | Narvanen; Kai | Rantala; Tero	455	H04Q	20030224	0	100%	☐

Abstract: An access control system for controlling access by wireless terminals to a wireless telecommunications network, the access control system comprising: a database storing the identities of a set of wireless terminals belonging to the telecommunications network; a configurable store for storing a supplementary access value indicative of whether terminals that do not belong to the telecommunications network may access the network; and an access control unit for receiving an access request message indicating the identity of a wireless terminal and in response to that message accessing the database and/or the store to permit access by the wireless terminal to the wireless telecommunications network if: a. the identity of the wireless terminal is present in the database; or b. the supplementary access value indicates that terminals that do not belong to the telecommunications network may access the network.
MainClaim: An access control system for controlling access by wireless terminals to a wireless telecommunications network, the access control system comprising:

a database storing the identities of a set of wireless terminals belonging to the telecommunications network;

a configurable store configurable in two ways by use of a supplementary access value, the value being capable of being set in one way to indicate that terminals that do not belong to the telecommunications network may access the network and the value being capable of being set in another way to indicate that terminals that do not belong to the telecommunications network may not access the network; and

an access control unit for receiving an access request message indicating the identity of a wireless terminal and in response to that message accessing the database and/or the store to permit access by the wireless terminal to the wireless telecommunications network if:

a. the identity of the wireless terminal is present in the database; or

b. the value is set to indicate that terminals that do not belong to the telecommunications network may access the network.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	93%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,725,566	Framework for enabling service tuning for UPNP remote access	Nokia Corporation	Stirbu; Vlad	709	G06F	20070327	0	100%	☐

Abstract: A system and method for enabling a UPnP device to provide services on behalf of another UPnP device. According to the present invention, all services requested from the original serving devices are redirected to the shadow device, while the original device has no knowledge of this redirection. With the present invention, a remote UPnP device requesting a service has no knowledge that the service is being provided by a shadow device.
MainClaim: A method of enabling communication between a remote device and a shadow device, comprising: aggregating device information from a real device located within a home network, the aggregated device information including a device description document URL reflecting a real device unique user identifier; receiving a request from an alternative device to register as the shadow device, the shadow device including a shadow device unique user identifier; rewriting the device description document URL to reflect the shadow device unique user identifier instead of the real device unique user identifier; and transmitting the device description document URL including the shadow device unique user identifier to the remote device, after which the remote device uses the shadow device unique user identifier to communicate directly with the shadow device.

	Automatic		Sharp; Christopher						

2009/0228566	notification system and process	APPLE INC.	Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,123,878	Apparatus, method and system for a connectivity tool in bluetooth devices	Nokia Corporation	Heinonen; Tomi | Laitinen; Timo M. | Ginman; Tommy | Perala; Timo K.	455	H04B	20020614	0	100%	☐

Abstract: An apparatus, method, and system for a database of Bluetooth devices. The Bluetooth directory database accelerates, facilitates, and simplifies communications. Communications are made more efficient with a connectivity tool. Both the Bluetooth directory database and connectivity tool may be integrated into a Bluetooth device. The connectivity tool uses the Bluetooth directory database to correlate Bluetooth addresses of various devices together with other device identifiers, e.g., cleartextual representations. Thus, when other Bluetooth devices are encountered, information obtained from inquiry and/or page responses may be saved into the Bluetooth directory database for future reference. In one non-limiting example embodiment, communications are more efficient because the connectivity tool reduces the amount of subsequent Bluetooth inquiries and responses required to identify and/or engage in communications with Bluetooth devices. Rather than inquiring to identify and locate Bluetooth devices in a particular coverage area and requiring user selections, the Bluetooth directory database may be used as a cache to retrieve a desired device's communication information (i.e., its correlated Bluetooth address, its functionality (e.g. GOEP, SDAP, etc. profiles), its other related information) and communications may commence more efficiently as a result by directing communications based on the retrieved communication information.
MainClaim: A method of wireless communication between Bluetooth devices, comprising: receiving an initial signal; identifying information descriptive of a device that originated the received initial signal from the received initial signal, wherein the device descriptive information includes at least a Bluetooth address of the originating device; storing the device descriptive information in a database, wherein an association is maintained between the originating device's address and any other information relating to the originating device; invoking a selection list of known devices; retrieving known devices from the device descriptive database; providing the selection list of known devices, wherein items in the selection list of known devices may be selected, wherein the retrieved known devices are represented by cleartext names, wherein the list of known devices is populated with known devices retrieved from the device descriptive database; accepting a selection of a representation of a desired target device from the list; sending a signal to establish a communication connection with the desired target device, wherein the sent establishing signal may effect a response from the desired target device; receiving a response signal from a device responding to the sent establishing signal, wherein the Bluetooth address included in the device descriptive information is employed for future connection to the originating device via paging without conducting Bluetooth inquiry for detecting the originating device.

2009/0061840	CARRIER CONFIGURATION AT ACTIVATION	Apple Inc.	Fleischman; David | Coffman; Patrick | Wyld; Jeremy | Cassidy; Brian | Christie; Gregory N.	455	H04M	20080902	6	92%	☐

Abstract: Methods, systems, and computer-readable medium for providing telecommunications carrier configuration at activation of a mobile device. In one implementation, a method is provided. The method includes receiving a request for activation of a mobile device, and during activation of the mobile device, determining for the mobile device a telecommunications carrier from a number of telecommunications carriers, and identifying information associated with the determined telecommunications carrier for configuring the mobile device.
MainClaim: A method comprising:receiving a request for activation of a mobile device; andduring activation of the mobile device:determining for the mobile device a telecommunications carrier from a number of telecommunications carriers; andidentifying information associated with the determined telecommunications carrier for configuring the mobile device.

2010/0070758	Group Formation Using Anonymous Broadcast Information	Apple Inc.	Low; Daryl Mun-Kid | Huang; Ronald Keryuan | Mishra; Puneet | Jain; Gaurav | Gosnell; Jason | Bush; Jeff	713	H04L	20080918	2	92%	☐

Abstract: A number of devices co-located at a geographic location can broadcast and receive tokens. Tokens can be exchanged using a communication link having limited communication range. Tokens that are received by a device can be stored locally on the device and/or transmitted to a trusted service operating remotely on a network. In some implementations, the tokens can be stored with corresponding timestamps to assist a trusted service in matching or otherwise correlating the tokens with other tokens provided by other devices. The trusted service can perform an

analysis on the tokens and timestamps to identify devices that were co-located at the geographic location at or around a contact time which can be defined by the timestamps. A group can be created based on results of the analysis. Users can be identified as members of the group and invited to join the group.
MainClaim: A method comprising:receiving tokens and corresponding timestamps from devices;identifying devices that have exchanged one or more tokens at a time, or in a time frame, determined by the timestamps;identifying users associated with the identified devices; andcreating a group for the identified users.

7,634,564	Systems and methods for invoking a service from a plurality of event servers in a network	Nokia Corporation	Trossen; Dirk	709	G06F	20041118	0	100%	☐

Abstract: A system is provided for multipoint service (e.g., web service) invocation includes a plurality of event servers and a proxy. The event servers are associated with a group address representative of at least one characteristic of the event servers, and are also associated with at least one contact address. The proxy is capable of receiving a request for invocation of a service, where the request is addressed to the group address. In response to receiving the request, the proxy is capable of mapping the group address to at least one contact address associated with the event servers, and forwarding the service invocation request to the event servers based upon the at least one contact address. In turn, the event servers are capable of receiving the service invocation request and separately invoking the requested service.
MainClaim: A system comprising: a plurality of event servers each of which includes a processor, the plurality of event servers being associated with a group address representative of at least one characteristic of the event servers, the event servers also being associated with at least one contact address; and a proxy including a processor, the proxy being configured to receive a service invocation request addressed to the group address, wherein the request is for invocation of a service and includes a description of the service encapsulated in a Simple Object Access Protocol envelope, wherein the proxy is configured to map the group address to at least one contact address associated with the event servers, wherein the proxy is configured to forward the service invocation request to the event servers based upon the at least one contact address, and wherein event servers are configured to receive the service invocation request and separately invoke the requested service.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	94%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

6,775,535	Decision-basing apparatus, and an associated method, for radio device responsive to origination source of data sent thereto	Nokia Corporation	Mittal; Gaurav	455	H04M	20020131	0	100%	☐

Abstract: Apparatus, and an associated method, for allocating charges that accrue to download content to a mobile station from a data source, either a third-party data source or a system-operator data source. An SMS message is generated at an SMS center that includes an identification of the type of data source that is to originate the data. A detector at the mobile station detects the SMS message and the identification of the type of data source at which the content is to be originated. A table is accessed, and a calling number associated with the data source is retrieved therefrom. A terminal management session is thereafter formed utilizing the retrieved calling number. The calling number forms either a toll number or a toll-free number and is determinative of to where charges shall be allocated to download the content.
MainClaim: In a radio communication system having a network part and a mobile station to which data is selectably communicated pursuant to a data call, the data sourced at a selected data source, a combination with the mobile station of apparatus for facilitating allocation of data call charges accruing pursuant to the data call, said apparatus comprising:

a detector coupled to detect indications of a request initiated at the selected data source for formation of the data call, the indications of the request including indicia identifying, at least by type, the selected data source;

a table containing a listing of the indicia included as part of the request to which said detector is coupled to detect indexed together with a calling number associated with the indicia, the calling number identifying whether the data call charges accruing pursuant to the data call shall accrue to the mobile station; and

a data call initiator coupled to receive indications of the calling number indexed together with the indicia at said table and corresponding to the indicia contained in the indications of the request detected by said detector, said data call initiator for initiating the data call responsive thereto.

2008/0085707	Dynamic Carrier Selection	Apple Inc.	Fadell; Tony	455	H04Q	20061010	3	92%	☐

Abstract: Systems, methods, computer software for providing access to wireless communication services are provided. The invention, in one embodiment, can involve storing a network address on a mobile device and sending a request for network operator data from the mobile device to a mobile virtual network operator server associated with the network address. In response, network operator data is received, and, based on the received network operator data, a network operator is selected. Communications are thereafter conducted using the selected network operator. In some situations, bids are received from multiple network operators for rates at which communication services using each network operator can be obtained. Preferences among the network operators are identified using the received bids, and the preferences are used to select the network operator for the mobile device to use in conducting communications.

MainClaim: A method for providing access to a wireless cellular communication network, the method comprising:storing a network address on a mobile device, wherein the network address identifies a mobile virtual network operator server storing mobile network operator data for use by the mobile device;receiving network operator data from the mobile virtual network operator server;selecting a network operator for the mobile device to use for communications based on the received network operator data; andconducting communications with the selected network operator.

7,171,209	System and method for allowing subscribers to make internal calls while roaming to other networks	Nokia Corporation	Numminen; Raili | Rissanen; Pekka | Narvanen; Kai	455	H04Q	20040330	0	100%	☐

Abstract: An access control system for a wireless telecommunications system comprising: a first base station serving a first site and operable as part of a first wireless telecommunications network; a second base station serving a second site and operable as part of a second wireless telecommunications network; the first and second telephone networks being connected together, whereby a call can be connected between the first base station and the second base station via the first wireless telecommunications network and the second wireless telecommunications network; and the access control system comprising: a data link of which use is restricted between the first network and the second network, whereby a call may be connected between the first network and the second network; and a first site link access control unit comprising a database for storing identities of wireless terminals at the second site for permitting calls to such terminals made at the first site to be routed from the first site to the second site over the data link.

MainClaim: An access control system for a wireless telecommunications system comprising: a first base station serving a first site and operable as part of a first wireless telecommunications network; a second base station serving a second site and operable as part of a second wireless telecommunications network; the first and second wireless telecommunications networks being connected together and the first and second sites being physically separate, whereby a call can be connected between the first base station and the second base station via the first wireless telecommunications network and the second wireless telecommunications network; and the access control system comprising: a data link of which use is restricted between the first network and the second network, whereby a call may be connected between the first network and the second network; and a first site link access control unit comprising a database for storing identities of wireless terminals at the second site for permitting calls to such terminals made at the first site to be routed from the first site to the second site over the data link.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	94%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.

MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,680,258	Providing information in a communication system	Nokia Corporation	Ylikoski; Martti	379	H04M	20040825	0	100%	☐

Abstract: The present invention relates to a method for providing user equipment information associated with use of services provided via a communication system. The method comprises a step of collecting, in a network element, use information relating to use, by the user equipment during a period, of a service provided via the communication system. The method comprises a further step of loading, by the network element, the use information on the user equipment according to a predetermined plan. An information provision entity, user equipment and a communication system are configured to execute the method.

MainClaim: A method, comprising: facilitating collecting, in a network element, of use information relating to use, by

user equipment during a period, of a service provided via a communication system; and facilitating loading, by the network element, of the use information onto the user equipment according to a predetermined plan, wherein the predetermined plan comprises the network element either loading the use information onto the user equipment responsive to the network element recognizing an end of use of the service by observing a resource identifier or loading the use information onto the user equipment according to a predetermined interval, the loading comprises loading the use information automatically in a memory of the user equipment, and the loading comprises loading the use information in response to a predetermined occurrence.

2008/0085707	Dynamic Carrier Selection	Apple Inc.	Fadell; Tony	455	H04Q	20061010	3	94%	☐

Abstract: Systems, methods, computer software for providing access to wireless communication services are provided. The invention, in one embodiment, can involve storing a network address on a mobile device and sending a request for network operator data from the mobile device to a mobile virtual network operator server associated with the network address. In response, network operator data is received, and, based on the received network operator data, a network operator is selected. Communications are thereafter conducted using the selected network operator. In some situations, bids are received from multiple network operators for rates at which communication services using each network operator can be obtained. Preferences among the network operators are identified using the received bids, and the preferences are used to select the network operator for the mobile device to use in conducting communications.
MainClaim: A method for providing access to a wireless cellular communication network, the method comprising:storing a network address on a mobile device, wherein the network address identifies a mobile virtual network operator server storing mobile network operator data for use by the mobile device;receiving network operator data from the mobile virtual network operator server;selecting a network operator for the mobile device to use for communications based on the received network operator data; andconducting communications with the selected network operator.

7,509,652	Event related communications	Nokia Corporation	Niemi; Aki	719	G06F	20021007	0	100%	☐

Abstract: A method in a communication system wherein a requestor (18) signals a request (1) for a service associated with an event. The request includes a first identifier for identifying the requested event and a second identifier for identifying the origin of the event. An executable set of instructions is then selected based on the first and second identifiers. Communications associated with the specific event is then controlled by means of the selected executable set of instructions. A communication system and a service execution entity (12) operating in accordance with the method is also disclosed.
MainClaim: A computerized method, comprising: receiving from a requestor a session initiation protocol event message comprising a first identifier that identifies a user specific event created by a user and a second identifier that identifies an origin of the user specific event; subscribing the requestor to the event in response to receiving a request generated and transmitted by a user equipment; selecting an executable set of instructions based on the first and second identifiers, wherein the selecting comprises mapping the first identifier into executable sets of instructions and fetching the selected executable set of instructions from storage; and controlling communications associated with the user specific event with the selected executable set of instructions, wherein the controlling comprises monitoring for a change in a state of the event and transmitting a message to the requestor in response to detection of a change in the state of the event.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,512,401	Method and system for updating capabilities of a device	Nokia Corporation	Muhonen; Ahti | Salo; Juha H. | Aaltonen; Janne La | Antola; Janne | Pajusalo; Ari | Hannikainen; Ari	455	H04M	20050404	0	100%	☐

Abstract: A method and system for transmitting data to a device is described. The method includes steps of comparing, in a server, a list of capabilities of the server against a list of capabilities of a mobile terminal and creating a list of capabilities in the server and not in the mobile terminal. The method and system wirelessly transmit, to the mobile terminal, a request to confirm the capabilities of the mobile terminal. The mobile terminal receives the request and the list of capabilities and compares the list of capabilities to current capabilities of the mobile terminal and then wirelessly transmits data identifying its capabilities to the server, the data including information of new capabilities of the mobile terminal. The server then updates the list of capabilities of the mobile terminal based on the information of new capabilities.
MainClaim: A method, comprising: receiving from a server a request to confirm a set of capabilities of a mobile terminal, said request comprising a list of capabilities, wherein said list of capabilities does not include a first capability;

comparing at the mobile terminal the list of capabilities received from the server to a current set of capabilities of the mobile terminal; determining that the first capability is not in the received list of capabilities; identifying to the server the first capability of the mobile terminal; receiving a second request to confirm a second capability of a second mobile terminal, said second request including the list of capabilities; comparing the list of capabilities to current capabilities of the second mobile terminal; updating the list of capabilities to include whether the second capability of the second mobile terminal matches any capability listed in the list of capabilities; and transmitting to the server the updated list of capabilities, including whether the second capability of the second mobile terminal matches any capability in the list of capabilities.

2010/0075695	SYSTEMS, METHODS, AND DEVICES FOR RETRIEVING LOCAL BROADCAST SOURCE PRESETS	Apple Inc.	Haughay, JR.; Allen P. | Ingrassia, JR.; Michael Ignazio | Lee; Jeffrey	455	H04W	20080924	3	93%	☐

Abstract: A media device including a broadcast receiver that receives broadcast media and a location sensor that determines the location of the media device and generates media device location data. The media device includes a data store that stores at least one data network address for a media data server where the media data server includes a list of broadcast source settings. The data store also stores a preset list of broadcast source settings. The media device also includes a transceiver for: i) sending the media device location data to the media data server and ii) retrieving a location-based list of broadcast source settings associated with the location of the media device. The media device further includes a processor that compares the preset list with the location-based list and determines a local preset list from the retrieved location-based settings that match the preset settings.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media,a location sensor for determining the location of the media device and generating media device location data, anda data store for storing: i) at least one data network address for a media data server, the media data server including a list of broadcast source settings and ii) a preset list of broadcast source settings,a transceiver for: i) sending the media device location data to the media data server and ii) retrieving a location-based list of broadcast source settings associated with the location of the media device, anda processor for: i) comparing the preset list with the location-based list and ii) determining a local preset list from the retrieved location-based settings that match the preset settings.

2010/0076576	SYSTEMS, METHODS, AND DEVICES FOR PROVIDING BROADCAST MEDIA FROM A SELECTED SOURCE	Apple Inc.	Lee; Jeffery | Ingrassia, JR.; Michael Ignazio | Perry; Ryan	700	G06F	20080924	3	93%	☐

Abstract: A media device including a broadcast receiver that receives media from a broadcast source via a broadcast radio signal and a radio signal sensor that measures a signal characteristic of the received broadcast radio signal. The media device also includes a data transceiver that i) requests and retrieves a network address of a media server which provides the media via a network signal from a data network, ii) establishes a data connection with the media server, and iii) receives the media via the network signal from the media server. The media device further includes a selector that i) selects the broadcast radio signal when the signal characteristic satisfies a selection standard and ii) selecting the network signal when the signal characteristic does not satisfy the selection standard. The media device also includes a user interface that provides at least one of an audio and visual output based on the selected signal.
MainClaim: A media device comprising:a broadcast receiver for receiving media from a broadcast source via a broadcast radio signal;a radio signal sensor for measuring a signal characteristic of the received broadcast radio signal;a data transceiver for i) requesting and retrieving a network address of a media server providing the media via a network signal from a data network, ii) establishing a data connection with the media server, andiii) receiving the media via the network signal from the media server; anda selector for i) selecting the broadcast radio signal when the signal characteristic satisfies a selection standard and ii) selecting the network signal when the signal characteristic does not satisfy the selection standard; anda user interface for providing at least one of an audio and visual output based on the selected signal.

2010/0075593	MEDIA DEVICE WITH ENHANCED DATA RETRIEVAL FEATURE	Apple Inc.	Lee; Jeffrey | Ingrassia, JR.; Michael Ignazio	455	H04H	20080924	5	93%	☐

Abstract: A personal media device including a broadcast receiver that receives broadcast media and broadcast media data from a broadcast source where the broadcast media data includes a media identifier associated with the broadcast media. The media device also includes a data transceiver that sends a retrieval request to a media server for enhanced media data where the retrieval request includes the media identifier and receives the enhanced media data via a wireless data channel. The media device further includes a processor that performs a media device operation in response to the received enhanced media data.
MainClaim: A media device comprising:a broadcast receiver for receiving broadcast media and broadcast media data from a broadcast source, the broadcast media data including a media identifier associated with the broadcast media,a data transceiver for i) sending a retrieval request to a media server for enhanced media data, the retrieval request including the media identifier and ii) receiving the enhanced media data via a wireless data channel, anda processor in communication with the data transceiver for performing a media device operation in response to the received enhanced media data.

7,644,267	Controlling access to services in a communications system	Nokia Corporation	Ylikoski; Martti | Hyotylainen; Tahvo | Virtanen; Timo | Laine; Artuu | Kiiskinen;	713	H04L	20040630	0	100%	☐

			Terho | Aakula; Jukka						

Abstract: A proxy network element for controlling access to services in a communications system is disclosed. The proxy network element is configured to communicate with at least one further network element using a protocol belonging to a plurality of protocols, the at least one further network element controlling service usage based on service subscriptions. The proxy network element is also configured to provide access for the at least one further network element to at least one information store storing information relating to service subscriptions. The proxy network element provides support for communicating using the plurality of protocols and support for accessing a plurality of different information stores.
MainClaim: An apparatus, comprising: a processor configured to: communicate with a plurality of network elements using a plurality of protocols, said plurality of network elements controlling service usage based on service subscriptions; provide access for said plurality of network elements to a plurality of information stores of different types employing different protocols, said information stores storing information relating to said service subscriptions; receive requests from said plurality of network elements; convert said requests, having said plurality of protocols, into unified requests comprising unified messages having a predefined message structure with a predefined set of attributes or other predefined message components; and process said unified requests, to provide support to access said plurality of information stores of different types employing different protocols and to fetch information from at least one of said plurality of information stores.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	94%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

6,961,574	Radio handset	Nokia Mobile Phones Limited	Stage; Erling | Pedersen; Claus	455	H04Q	20000306	0	100%	☐

Abstract: A radio handset for browsing the Internet comprising a browser application, which allows a user of the handset to access the internet via a first transceiver means arranged to send radio packets to and receive radio packets from an Internet gateway. The radio handset comprising further routing means arranged to route content supplied by the internet gateway via the first transceiver means to a registered application, the content having an identifier for identifying the type of application suitable for receiving the content and arranged to register applications by associating an application on registration with at least one identifier. A user interface is connected to the browser means having a display for displaying content and user input means. Also, an interface having a radio transceiver for coupling with an interface of an accessory device comprising a remote application.
MainClaim: A radio handset for browsing the Internet comprising:

a browser application which provides a user of the handset access to the Internet via a first transceiver which sends radio packets to and receives radio packets from an Internet gateway;

a router arranged to route content supplied by the Internet gateway via the first transceiver to a registered application, the content having an identifier which identifies the type of application suitable for receiving the content and arranged to register applications by associating an application on registration with at least one identifier;

a user interface connected to the browser application having a display for displaying content and a user input; and

an interface having a radio transceiver for coupling with an interface of an accessory device comprising a remote application, the interface being arranged to receive content routed to the remote application and to thereby increase the functionality of the handset, wherein the remote application is automatically registered by the router in response to the coupling of the handset and accessory device.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	93%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an

access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

7,193,995	License control at a gateway server	Nokia Corporation	Solala; Erkki	370	H04L	20000607	0	100%	☐

Abstract: The invention relates to a gateway server for receiving a message from a terminal and comprising a protocol stack (50) for processing the message according to a particular protocol stack. The server further comprises license control means (53) for controlling the access right of the message to enter the server before the message is allowed to pass to the protocol stack (50). The invention also relates to a method and a computer program product for controlling, at a server, access right of a message received from a terminal at the server.

MainClaim: A method of controlling, at a server, access right of a message received from a terminal at the server, and where the message is processed by a protocol stack, and where the message is a data packet comprising: a sender address specifying the address of the terminal, a port number specifying the application address of the instance sending the message at the terminal, and user data including the contents of the message, and the method comprising: checking the right of the message to enter the server before the message is allowed to pass to the protocol stack establishing a session between the server and the terminal and for receiving the data packet within the session, and the checking of the right of the message to enter the server comprises: storing a number of access right licenses purchased by a licensee, and reserving a license of the licensee if the data packet arrived in a new concurrent session relating to the licensee, controlling that the number of reserved licenses does not exceed the number of purchased access right licenses, reserving a license for the session as a response to having determined existence of access right, and monitoring the time passed since the last data packet arrived in one session, and releasing the license for the session where a predetermined time has passed since the last data packet arrived in the session.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.

MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,177,597	System and method for assigning contact information to an external device for communication purposes using a mobile device	Nokia Corporation	Jung; Younghee | Wikberg; Harri | Ichikawa; Fumiko | Piippo; Petri | Grignani; Raphael	455	H04B	20031222	0	100%	☐

Abstract: A system enables a user to communicate with another person via an external device, e.g. an audio, video, display interface. The external device includes a short-range transceiver, a memory, and an output interface. The mobile device includes two network transceivers, typically a cellular transceiver and a short-range transceiver, typically Bluetooth. In operation, the user prepares and stores a list of external devices with assigned IDs. The user further stores a list of phone numbers (phone book information) of contacts on the cellular network associated with the external devices for delivery of messages to the selected external device(s). The mobile device scans the network, and detects messages from associated contact source(s). The messages are stored by the ID. When the mobile device is within the coverage area of the external device, the mobile device transmits the message(s). The external device interprets the message for output to the intended recipient.

MainClaim: A method for communicating between a mobile device and an external device, comprising: a) storing in a mobile device an external device list including at least one external device ID wherein the external device provides audio, video and/or visual display outputs as a dynamic bulletin board; b) maintaining in the mobile device contact information for associating at least one of the contacts with the at least one external device ID; c) creating an association between the at least one contact and the at least one external device ID; d) maintaining a network connection for receiving communications through the network; e) scanning received communications for identifying messages related to the at least one contact associated with the external device ID; f) detecting external devices providing IDs for short-range communication; g) transmitting messages related to the at least one contact associated with the external device ID to said external device when detecting the presence of said external device and within the range of the external device; and h) interpreting the message in the external device for appropriate audio video and/or visual display output.

2008/0310305	Interruption control	Apple Inc.	Lee; Michael M.	370	H04J	20070614	2	96%	☐

Abstract: A communications system in which a user may control interruptions to ongoing communications operations is provided. Using a communications device, a user may perform any suitable communications operation (e.g., voice, video or data communications). In response to receiving a communications request from another device, the communications device may determine whether the other device is authorized to interrupt the ongoing communications operation using

any suitable approach (e.g., priority rankings of devices, or specific exceptions for certain devices). The interruption, if authorized, may be in any suitable form including, for example, audio interruptions, visual interruptions, physical interruptions, or any other suitable interruption type.
MainClaim: A method for determining whether to interrupt an ongoing communications operation performed by a communications device, the method comprising:directing the communications device to perform a communications operation with a first device;receiving a request from a second device to initiate a communications operation with the communications device;determining whether the second device is authorized to interrupt the ongoing communications operations with the first device; andin response to determining that the second device is authorized to interrupt the ongoing communications operation with the first device, interrupting the ongoing communications operation with the first device.

7,418,256	Method of invoking privacy	Nokia Corporation	Kall; Jan | Muhonen; Ahti | Mulligan; Michael	455	H04M	20010409	0	100%	☐

Abstract: The invention relates to a method of invoking privacy related to a user equipment (1) capable of accepting push messages in communications network, which push message is a message a server may send to the user equipment (1) without the user of the user equipment (1) asking for it and the server having the ability to be able to act as a push message initiator. The method comprises the steps of: (i) sending a first request for the personal user data from the user equipment (1) to an origin server (2) over a first channel (A); (ii) the origin server (2) sending a request for personal user data to a supporting server (3); (iii) the supporting server (3) sending a push message over a narrow band channel (C) to the user equipment (1) indicating said request for the user data made by the origin server (2); (iv) the user equipment (1) responding to the push message at least by an allowing message or a disallowing message for the request of data over said narrow band channel; and (v) the supporting server (3) providing the data to the origin server (2) at least partly in response to the allowing message, and rejecting the data providing otherwise.
MainClaim: A method of invoking privacy related to a user equipment capable of accepting push messages in a communications network, which push message may be sent by a server to the user equipment without the user of the user equipment asking for it and the server having the ability to be able to act as a push message initiator, the method comprising: (i) sending, from the user equipment to an origin server, a first request for a service over a first channel; (ii) detecting by the origin server the requested service requiring personal user data comprising user's privacy preferences, said personal user data comprising user's privacy preferences being in the possession of a supporting server which is adapted to be able to act as a push message initiator, said origin server being an application server for the service the first request relates to; (iii) the origin server, in response to the request, sending to said supporting server a second request for personal user data comprising user's privacy preferences; (iv) the supporting server sending, in response to the second request, a push message over a narrow band channel to the user equipment, said push message detailing the second request and indicating what personal user data comprising user's privacy preferences is requested and for what purpose; (v) the user equipment sending to the supporting server, over the said narrow band channel a response to the push message, the response being at least an allowing message or a disallowing message for the requested personal user data comprising user's privacy preferences; (vi) the supporting server providing at least part of the requested personal user data comprising user's privacy preferences to the origin server in response to the allowing message; and (vii) the origin server providing to the user equipment the requested service in response to the allowing message.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	93%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,293,271	Systems and methods for event semantic binding in networks	Nokia Corporation	Trossen; Dirk | Pavel; Dana	719	G06F	20030619	0	100%	☐

Abstract: A system and method are provided for binding a semantic to an event. The system includes a first network entity capable of transmitting a subscription message including an event package and a semantic description describing a semantic associated with the event package. The system also includes an event server capable of receiving the subscription message. The event server is thereafter capable of generating a semantic package identifier associated with the event package and the semantic description to thereby bind the event package to the semantic description. The event server is further capable of sending a first notify message to the first network entity, where the first notify message includes the semantic package identifier.
MainClaim: A method of binding a semantic to an event maintained by an event server, the event at least partially associated with at least one of services and content available within a network, the method comprising: receiving, at the event server from a first network entity, a subscription message including an event package and a semantic description describing a semantic associated with the event package; generating a semantic package identifier associated with the event package and the semantic description to thereby bind the event package to the semantic description; and sending

a first notify message to the first network entity, wherein the first notify message includes the semantic package identifier.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	94%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,644,163	Plug and play mobile services	Nokia Corporation	Gustafsson; Patrik	709	G06F	20040113	0	100%	☐

Abstract: This invention describes "plug and play" methodology for configuring a terminal, enabled for handling data-protocol services (e.g. GRPS), for the data-protocol services specific to a service provider so as to be able to connect said terminal to an IP backbone network via a network, which provides said data-protocol services and which is provided by said service provider. The invention further consists of using a well-known access point node (APN) name, and a well-known uniform resource locator (URL) string to access a service provider specific help-portal server of the network to request information for configuring the terminal. A core part of the invention is the fact that the security of the download is ensured by means of a chain of trust that originates with a trusted home location register or the well-known APN name, and is built using a trusted APN, the well-known URL string and a trusted domain name service.
MainClaim: A method, comprising: sending an access-request signal comprising a well-known uniform resource locator to a network by a terminal for connecting to a help-portal server of said network and for requesting a provisioning signal or a management session signal for configuring the terminal; receiving by the terminal, in response to said sending the access-request signal, an identity of said help-portal server using a chain of trust comprising at least two consecutive exchanges of information between trusted elements of the network and the terminal; and re-sending, in response to said receiving said identity of said help-portal server, said access-request signal to the help-portal server by the terminal with a request to provide the provisioning signal or the management session signal to the terminal, wherein, after being configured using the provisioning signal or the management session signal, the terminal is enabled for handling data-protocol services and dynamically configured for the data-protocol services specific to a service provider in a secure way based on said chain of trust so as to be able to connect said terminal to an IP backbone network via said network, which provides said data-protocol services and which is provided by said service provider wherein identifying said help-portal server comprises: identifying to the terminal a trusted access point node name by a trusted home location register of the network; re-sending the access-request signal to the trusted access point node by the terminal; identifying to the terminal a trusted domain name service server of the network by the trusted access point node; re-sending said access-request signal by the terminal to the trusted domain name service server for identifying an address mapping for the help-portal server; and identifying said address mapping to the terminal by the trusted domain name service server.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	93%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,221,939	System, method, and apparatus for automatically selecting mobile device profiles	Nokia Corporation	Ylitalo; Tapio | Schneider; Peter	455	H04Q	20020816	0	100%	☐

Abstract: A system, apparatus, and method for automatically or interactively updating a wireless/mobile device's active settings or profile, based on the location of the mobile device. Profile point identifiers are stored at the mobile device, where each of the stored profile point identifiers is associated with at least one of the profiles available on the mobile device. A profile point identifier that is transmitted over-the-air (OTA) from a corresponding profile point is received at

the mobile device when the mobile device is within the transmission range of that profile point. The profile associated with the stored profile point identifier that matches the transmitted profile point is activated in response thereto.
MainClaim: A method for activating profiles on a mobile device, comprising: facilitating storage of one or more profile point identifiers at the mobile device, wherein each of the stored profile point identifiers is associated with at least one of a plurality of profiles available on the mobile device; receiving a profile point identifier transmitted over-the-air (OTA) from a corresponding profile point via a local positioning technology using short range transmissions when the mobile device is within a transmission range of the profile point; activating at the mobile device the profile associated with the stored profile point identifier that matches the transmitted profile point; and configuring, using the activated profile settings, an application that facilitates secure storage of personal information used for making online payments via the mobile device.

2009/0005068	Location-Based Emergency Information	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Chaudhri; Imran A.	455	H04Q	20080103	2	93%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for location-based emergency information. A current geographic location of a device is determined. One or more first contact information items based on the determined geographic location are received at the device. The first contact information items include one or more contact information items associated with emergency services.
MainClaim: A method comprising:determining a current geographic location of a device; andreceiving one or more first contact information items based on the determined geographic location, the first contact information items comprising one or more contact information items associated with emergency services; andassociating at least one of the first contact information items with a user interface object in a user interface of the device.

7,694,331	Phone with secure element and critical data	Nokia Corporation	Vesikivi; Petri | Viitaniemi; Pekka K. | Sevanto; Jarkko	726	H04L	20050401	0	100%	☐

Abstract: A wireless communication device is implemented with a smart card module to secure the transmission of sensitive or confidential information. The user of the device must request permission to activate an application on the smart card module from a remote source. After this first level of security is satisfied, the application on the smart card module enables the user to scan data via a machine-readable medium in order to make a data request to the remote source. If a second level authorization is met in regard to the data request, the remote source will transmit the requested sensitive or confidential information to the user to view and/or update.
MainClaim: A method, comprising: receiving first level authentication information from a user at a wireless device; authenticating the user to use the wireless device; requesting authorization to utilize secure resources stored in a secure smart card module of the wireless device b transmitting at least the first level authentication information from the wireless device to a remote resource via wireless communication; receiving from the remote resource second level authentication information including a token session ID at the wireless device via wireless communication in response to validation of the first level authentication information; activating the secure resources stored in the secure smart card module of the wireless device using at least the received token session ID; interacting with the secure resources to create an information retrieval request by scanning machine-readable media associated with the information to be retrieved; transmitting at least the token session ID and the information retrieval request to the remote resource via wireless communication; and receiving a response to the information retrieval request in the wireless device from the remote resource in response to validation of at least the token session ID and the scanned machine-readable information.

2010/0082490	Systems and methods for secure wireless transactions	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mayo; Sean A. | Nakajima; Taido L.	705	H04L	20080930	4	94%	☐

Abstract: There is provided systems and methods for to conducting wireless transactions using portable electronic devices. Specifically, for example, a method of conducting a wireless transaction is provided that includes initiating a wireless transaction using a short range wireless communication system of a portable electronic device. The method also includes obtaining security information via at least one secondary system of the portable electronic device and utilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.
MainClaim: A method of conducting a wireless transaction, comprising:initiating a wireless transaction using a short range wireless communication system of a portable electronic device;obtaining security information via at least one secondary system of the portable electronic device; andutilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.

7,725,112	System and method for provision of proximity networking activity information	Nokia Corporation	Lehikoinen; Jaakko | FI) , Impio; Jussi | Uusitalo; Severi | Perala; Timo K.	455	H04W	20050208	0	100%	☐

Abstract: Systems and methods applicable, for instance, in proximity networking activity. For example, nodes and/or other computers may record, receive, and/or provide information regarding proximity networking activity. As another example, nodes and/or other computers may act to inform their users of proximity networking activity instances.
MainClaim: A method, comprising: recording, at a first node, descriptive attributes of proximity node network activity instances, wherein the proximity node network activity instances are proximity node network activity instances in which the first node is capable of partaking via proximity network connection with one or more other nodes; providing some or

all of the descriptive attributes to a second node, wherein the second node holds descriptive attributes of proximity node network activity instances; receiving at the first node from the second node some or all of the descriptive attributes held by the second node; informing a user of the first node of proximity node network activity instances associated with one or more geographical locations; and displaying at the first node a map with one or more indicators at geographical locations thereon, the indicators representing different types of proximity node network activities with different graphics, wherein one of descriptive attributes includes historical statistics regarding proximity network activity instances that have already occurred.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	92%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

7,526,563	Interworking gateway and method	Nokia Corporation	Ingimundarson; Jon Ingi | Regnier; Jean | Thorkelsson; Haraldur | Vachon; Gaetan	709	G06F	20050228	0	100%	☐

Abstract: An interworking gateway for interworking an OMA IMPS domain and a SIMPLE domain comprises an OMA IMPS interface for communication with the OMA IMPS domain, a SIMPLE interface for communication with the SIMPLE domain and an interworking function linking the interfaces and comprising a transaction mapping module for converting an interworking subset of OMA IMPS transactions received by the OMA IMPS interface to corresponding SIMPLE transactions and relaying the corresponding SIMPLE transactions to the SIMPLE interface for transfer to the SIMPLE domain and for mapping an interworking subset of SIMPLE transactions received by the SIMPLE interface to corresponding OMA IMPS transactions and relaying the corresponding OMA IMPS transactions to the OMA IMPS interface for transfer to the OMA IMPS domain.
MainClaim: An interworking gateway for interworking at least one Open Mobile Alliance (OMA) Instant Message and Presence Service (IMPS) domain and a Session Initiation Protocol (SIP) infrastructure comprising at least one SIP Instant Messaging and Presence Leveraging Extensions (SIMPLE) domain, the gateway comprising: an OMA IMPS interface for communication with the at least one OMA IMPS domain; a SIMPLE interface for communication with the SIP infrastructure; and an interworking function linking said interfaces and comprising a transaction mapping module for converting an interworking subset of OMA IMPS transactions received by said OMA IMPS interface to corresponding SIMPLE transactions and relaying said corresponding SIMPLE transactions to said SIMPLE interface for transfer to the SIP infrastructure, and for mapping an interworking subset of SIMPLE transactions received by said SIMPLE interface to corresponding OMA IMPS transactions and relaying said corresponding OMA IMPS transactions to said OMA IMPS interface for transfer to the at least one OMA IMPS domain.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,418,509	Method and apparatus for a distributed server tree	Nokia Corporation	Koskelainen; Petri | Vainikainen; Mikko	709	G06F	20011113	0	100%	☐

Abstract: A method and system for reducing server load. Requests are received for a service at a first server from a plurality of client devices. The first server decides to identify one or more other servers to provide the service to some of the plurality of client devices. An address is requested of one or more second servers from a server address management entity. A resource identifier is created at the second servers. Some of the plurality of client devices are redirected to get the service from the one or more second servers. A distributed server tree is formed. The first server provides the service to the second servers to be then provided to some of the plurality of client devices, therefore,

reducing the load on the first server and providing more efficient service to the plurality of client devices. The servers may be Session Initiation Protocol (SIP) servers.
MainClaim: A method, comprising: receiving requests for a service at a first server from a plurality of client devices; determining to identify at least one other server to provide the service to at least one of the plurality of client devices on the basis of determining that a plurality of client devices are located in a particular location; determining that some of the plurality of client devices fulfill load balancing criteria for providing the service more efficiently via at least one second server; creating a resource identifier for the at least one second server; and redirecting at least some of the plurality of client devices to get the service from the at least one second server, wherein the first server redirects the request for the service in a single message to each of the at least one second server, each of said at least one second server providing service for the plurality of client devices redirected to the at least one second server, therefore, reducing the load on the first server.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	94%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,272,392	Connection set-up in a communication system	Nokia Corporation	Boda; Peter	455	H04Q	20031105	0	100%	☐

Abstract: The present invention relates to provision of connections in a communication system, and more particularly, to establishment of a connection involving a mobile station subscribing to a first mobile communications network and roaming in a second mobile communications network. The communication system comprises a first connection management entity provided in association with the first mobile communication network and a second connection management entity provided in association with the second mobile communication network. In the method the roaming mobile station is registered with the second mobile communications network and with the second connection management entity. In response to a request for a connection involving the roaming mobile station, signalling that associates with the request is routed to one of the connection management entities. A communications link is then set-up between the first and second mobile communications networks via a third communications network by means of the first and second connection management entities based on said signalling associated with the request. The requested connection is then established by means of the communications link and the first and second mobile communications networks.
MainClaim: A method, comprising: registering a roaming mobile station with a second mobile communications network, the method being used for establishing a connection in a communication system, the connection involving the mobile station subscribing to a first mobile communications network and roaming in the second mobile communications network, the communication system comprising a first connection management entity provided in association with the first mobile communication network and a second connection management entity provided in association with the second mobile communication network; registering the roaming mobile station with the second connection management entity; in response to a request for a connection involving the roaming mobile station, routing signaling that associates with the request to one of the connection management entities; setting up a communications link between the first and second mobile communications networks via a third communications network by means of the first and second connection management entities based on said signaling associated with the request; establishing the requested connection by means of the communications link, the first mobile communications network and the second mobile communications network; and receiving the request for connection at a switching center of one of the first and the second mobile communications network, said switching center being configured to signal to the connection management entity provided in association with the same mobile communications network as said switching center in response to receiving the request, and said connection management entity being configured to request from the connection management entity provided in association with the other one of said first and second mobile communications networks for a communications link to be set-up between the first and second mobile communication networks.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.

MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,072,945	Network and method for controlling appliances	Nokia Corporation	Nieminen; Hannu | Salminen; Iikka | Tuomisto; Timo	709	G06F	20000630	0	100%	☐

Abstract: An appliance network for controlling appliances from a remote location. The appliances include memory which contains an address location from which an appliance control module can be located for controlling a corresponding appliance. The address location is provided to a local controller, preferably by wireless transmission, which then uses the address location to access the appliance control module. Once accessed, the appliance control module is stored on a local server for use in controlling the corresponding appliance. In a preferred embodiment, a security feature is included to limit appliance control access to authorized users.
MainClaim: A method for networking and controlling appliances within a local environment containing a local server responsive to commands received from a mobile phone or a personal digital assistant having a local controller function, each controllable appliance being controllable by a corresponding appliance control module, comprising the steps of: receiving, in response to a request transmitted within the local environment, an address of a remote location maintaining appliance control modules for each controllable appliance; obtaining the appliance control module by using the addresses to contact the remote location maintaining the appliance control module; installing on the local server, the appliance control module for each controllable appliance; providing communication between the local server and the controllable appliances; and accessing the local server with the local controller when the local controller is one of within the local environment and outside the local environment to select one of the installed appliance control modules for controlling the corresponding appliance.

2009/0061840	CARRIER CONFIGURATION AT ACTIVATION	Apple Inc.	Fleischman; David | Coffman; Patrick | Wyld; Jeremy | Cassidy; Brian | Christie; Gregory N.	455	H04M	20080902	6	94%	☐

Abstract: Methods, systems, and computer-readable medium for providing telecommunications carrier configuration at activation of a mobile device. In one implementation, a method is provided. The method includes receiving a request for activation of a mobile device, and during activation of the mobile device, determining for the mobile device a telecommunications carrier from a number of telecommunications carriers, and identifying information associated with the determined telecommunications carrier for configuring the mobile device.
MainClaim: A method comprising:receiving a request for activation of a mobile device; andduring activation of the mobile device:determining for the mobile device a telecommunications carrier from a number of telecommunications carriers; andidentifying information associated with the determined telecommunications carrier for configuring the mobile device.

2010/0081385	Peer-to-peer host station	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	455	H04B	20080930	2	92%	☐

Abstract: A method and system is disclosed for allowing the sharing of one or more system resources between multiple devices. In one embodiment, a requesting device transmits a resource access request to a target device using a near-field communication (NFC) protocol. The target device responds by using the NFC connection to return a listing of resources available for sharing to the requesting device. The requesting device may select one or more of the available resources and establish an appropriate connection to access the selected resource or resources. In one embodiment, the requesting device may lack external network connectivity capabilities while the target device includes wi-fi connectivity as a shared resource. Accordingly, the requesting device may access external network of the target device via the target as a conduit.
MainClaim: An electronic device, comprising:a communication interface adapted to provide one or more network connections for connecting the electronic device to one or more networks; anda near field communication (NFC) interface adapted to utilize one of the one or more network connections for connecting the electronic device to at least one secondary device, wherein the one of the one or more network connections provides, to the secondary device, access to one or more external networks of the electronic device.

2009/0005005	Mobile Device Base Station	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Tiene; Kevin	455	H04Q	20080102	10	92%	☐

Abstract: A mobile device can be configured as a base station to be used by other mobile devices and non-mobile devices to gain access to network services. The mobile device can be configured to provide and manage secure access to variety of networks (e.g., Wi-Fi, WiMax, Internet, cellular) and network services (e.g., map services, web services, syncing services).
MainClaim: A mobile device comprising:a processor;a storage device coupled to the processor and having instructions stored thereon, which, when executed by the processor, causes the processor to configure the mobile device to be an access point for a wireless network; anda communication interface coupled to the processor and operable for receiving

an access request from a requesting device, and for coupling the requesting device to the wireless network in response to the access request.

7,454,781	Method enabling multiple sessions and applications in instant messaging and presence service	Nokia Corporation	Tachizawa; Tetsuro | Ordogh; Zoltan	726	H04L	20051108	0	100%	☐

Abstract: The invention relates to a method for a user to obtain services from an Instant Message and Presence Service (IMPS) server. The user is identified by a user identification (UserID). An application session is established, through an application client of the user, on the IMPS server. In order to establish the session, an identification code is established in order to be used for the session, and the session is established only if the identification code is not being used for an existing session established by the same user on the same server.
MainClaim: A method, comprising: providing an identification code to be used by a client of a user for establishing a session on an instant message and presence service server, transmitting the identification code to the server for establishing the session, and establishing the session if the identification code is not used by an existing session established by the same user on the same server.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	94%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,149,542	Method and network element for connecting a subscriber to a cellular telecommunication network	Nokia Corporation	Hamberg; Max	455	H04M	20050914	0	100%	☐

Abstract: A method and apparatus for connecting a subscriber apparatus or subscriber's network to a mobile network, wherein a network element is placed between a mobile network and a subscriber apparatus or subscriber's network. The network element emulates the appropriate interface towards both the mobile network and a subscriber apparatus or subscriber's network that are attached to the network element. The network element is assigned the task to switch and, if necessary, concentrate calls between the mobile network and subscriber's network. In addition, the network element advantageously comprises a database block that stores the subscriber data needed by the mobile network, which data correspond to subscriber apparatus in the subscriber's network connected to the mobile network.
MainClaim: A system comprising: a subscriber apparatus of a user arranged to connect to a host mobile network, means for storing, in a network element connected to the host mobile network, subscriber data corresponding to information concerning the subscriber apparatus of the user of the subscriber system, said network element being arranged to associate the subscriber apparatus of the user with a mobile communication means of the user on the host mobile network; means for transporting a user's subscriber identity to the network element; means for realizing emulation of network functions towards said host mobile network and towards said subscriber system based on at least one of said user's subscriber identity and said stored subscriber data; means for emulating towards said host mobile network a first desired interface by producing first signals representing signals of the host mobile network in said network element, said host mobile network including said first desired interface; means for emulating towards said subscriber system a second desired interface by producing second signals representing signals of the subscriber system in said network element, said subscriber system including said second desired interface; and means for connecting, in said network element, said second signals to the host mobile network and said first signals to said subscriber system based on said stored subscriber data.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a

different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,418,485	System and method for addressing networked terminals via pseudonym translation	Nokia Corporation	Payrits; Szabolcs	709	G06F	20030424	0	100%	☐

Abstract: A system, apparatus, and method for performing terminal address translation, and more particularly for identifying addresses of mobile terminals in a mobile network in order to communicate messages with the mobile terminals. Messages are received from a service consumer at a pseudonymity proxy operable within the mobile network, where the message includes an information exchange message including a pseudonym locally identifying a target mobile terminal. The pseudonym is translated into an address of the target mobile terminal unknown to the service consumer. The information exchange message is forwarded from the pseudonymity proxy to the address of the target mobile terminal.
MainClaim: A method comprising: receiving a message from a service consumer at a pseudonymity proxy within the mobile network, wherein the message includes a Simple Object Access Protocol (SOAP) message including a pseudonym identifying a target mobile terminal via a header of the SOAP message; determining, via the pseudonymity proxy, a header element of the header that includes a SOAP attribute identifying a targeted recipient of information in the header, the header element including a child element providing at least a pseudonym type and the pseudonym; resolving the pseudonym type and the pseudonym as a Uniform Resource Identifier (URI) pointing to an XML element; extracting the pseudonym from the XML element pointed to by the URI; resolving the pseudonym into an address of the target mobile terminal unknown to the service consumer; and forwarding the SOAP message from the pseudonymity proxy to the address of the target mobile terminal.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

7,600,265	System and method for applying an OMA DRM permission model to JAVA MIDP applications	Nokia Corporation	Davydov; Alexander | Cugi; Guido | Powell; Matthew	726	G06F	20050309	0	100%	☐

Abstract: A system and method of applying a permission model to an application operating on a mobile electronic device. When an application is launched on the mobile electronic device, it is determined whether the mobile electronic device possesses execution rights for the application. If the mobile electronic device does not possess valid execution rights for the application, the application is closed. If valid execution rights for the application expire after the application has been launched, a system is provided to inform the user that the rights have expired. The application with expired rights is then closed, unless the user obtains a new and valid rights object for the application.
MainClaim: A method, comprising: determining whether a mobile electronic device possesses valid execution rights for an application operating on the mobile electronic device, if the mobile electronic device possesses valid execution rights for the application, launching the application on the mobile electronic device; obtaining information that the valid execution rights for the application have expired after launching of the application; and in response to the expiration of the valid execution rights, closing the application.

2009/0247124	PROVISIONING MOBILE DEVICES BASED ON A CARRIER PROFILE	APPLE INC.	de Atley; Dallas | Panther; Heiko | Adler; Mitchell | Cooper; Simon | Brouwer; Michael | Reda; Matt	455	H04M	20090304	2	93%	☐

Abstract: Systems and methods for provisioning computing devices are provided. Carrier provisioning profiles are distributed to computing devices via an activation service during the provisioning process. The carrier provisioning profiles specify access limitations to certain device resources which may otherwise be available to users of the device.
MainClaim: A computer-implemented method of provisioning a computing device in a mobile network, the method comprising:receiving a provisioning profile comprising entitlement data indicative of allowed access to resources on a

device;receiving a request to provision a computing device; andprovisioning the computing device at least in part by delivering the provisioning profile to the device.

2009/0061840	CARRIER CONFIGURATION AT ACTIVATION	Apple Inc.	Fleischman; David | Coffman; Patrick | Wyld; Jeremy | Cassidy; Brian | Christie; Gregory N.	455	H04M	20080902	6	92%	☐

Abstract: Methods, systems, and computer-readable medium for providing telecommunications carrier configuration at activation of a mobile device. In one implementation, a method is provided. The method includes receiving a request for activation of a mobile device, and during activation of the mobile device, determining for the mobile device a telecommunications carrier from a number of telecommunications carriers, and identifying information associated with the determined telecommunications carrier for configuring the mobile device.
MainClaim: A method comprising:receiving a request for activation of a mobile device; andduring activation of the mobile device:determining for the mobile device a telecommunications carrier from a number of telecommunications carriers; andidentifying information associated with the determined telecommunications carrier for configuring the mobile device.

6,973,329	Method and network element for connecting a subscriber to a cellular telecommunication network	Nokia Corporation	Hamberg; Max	455	H04M	19990624	0	100%	☐

Abstract: The present invention relates to an arrangement and a method for providing access between a number of user stations connected by ratio via a number of radio base stations (RFP) and a switching arrangement (LE) of a telecommunications network. At least one access network (AN) is provided and it connects to the switching arrangement (LE) over at least one interface. A radio access network (DRAN) comprising a number of base stations (RFP) is provided which also comprise the access network (AN). An address field of the addressing mechanism of the existing in (V**5.1**) between the access network (AN) and the switching arrangement (LE) is so structured that it comprises a first part for addressing base stations (RFP) and a second part for addressing/identifying selected bearer channel on the existing interface (V**5.1**).
MainClaim: A method for connecting a subscriber system comprising a subscriber apparatus of a user to a host mobile network, comprising the steps of:

storing, in a network element connected to the host mobile network, subscriber data corresponding to information concerning the subscriber apparatus of the user of the subscriber system, wherein the network element associates the subscriber apparatus of the user with a mobile communication means of the user on the host mobile network;

transporting user's subscriber identity to the network element;

realizing emulation of network functions towards said host mobile network and towards said subscriber system based on said user's subscriber identity and/or said stored subscriber data;

emulating towards said host mobile network a first desired interface by producing first signals representing signals of the host mobile network in said network element, said first desired interface being of said host mobile network;

emulating towards said subscriber system a second desired interface by producing second signals representing signals of the subscriber system in said network element, said second desired interface being of said subscriber system; and

connecting, in said network element, said second signals to the host mobile network and said first signals to said subscriber system based on said stored subscriber data.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,062,222	Initiating a wireless connection to a broadcast program	Nokia Corporation	Boda; Peter Pal | Saarinen; Petteri J.	455	H04H	20011217	0	100%	☐

Abstract: A method and system for users to select and participate in call-in broadcast programs are disclosed. A user speaks a station name into a mobile device, providing an indication that the request is for a broadcast channel, to tune the mobile device to that channel. The user initiates a request to contact a show by inputting an indication that the user would like to contact the show. The mobile device sends the request to a call server, which looks up the show's contact information based on the current channel being received by the mobile device, and forwards the request to a show representative. The show representative screens calls and provide automated responses. When the show's representative accepts a request to contact the show, the call server initiates a connection between the mobile device and a telephone or other device associated with the show. Once the connection has been established, the call server withdraws from the connection, allowing the user to communicate with the show representative.
MainClaim: A call server, comprising: a processor; memory for storing data comprising: a database that correlates information identifying a plurality of broadcast programs to information for contacting each of the plurality of broadcast programs; and computer readable instructions that, when executed by the processor, cause the call server to perform a method for establishing a two-way wireless connection, comprising steps of: i. receiving from a mobile device a first request to establish a two-way connection between a broadcast program and the mobile device, said first request comprising a current condition of a dynamic variable and comprising additional information about the first request; ii. querying the database based on the dynamic variable to retrieve information for contacting the broadcast program corresponding to the dynamic variable; iii. sending a second request to establish the two-way connection between a device associated with the broadcast program and the mobile device as requested in the first request, said second request comprising the additional information about the first request; iv. receiving a response to the second request from the device associated with the broadcast program for establishing a two-way wireless connection to the mobile device; v. when the response indicates acceptance of the second request, establishing the requested two-way wireless connection between the mobile device and the device associated with the broadcast program; and vi. exiting from the connection between the device associated with the broadcast program and the mobile device.

2009/0175425	Outgoing voice mail recording and playback	Apple Inc.	Lee; Michael M.	379	H04M	20080103	1	93%	☐

Abstract: Systems and methods for enabling users to listen to outgoing voice mail messages are provided. These systems and methods record an audio file corresponding to a voice message being left by a user during an outgoing telephone call to a recipient, link the audio file to contact information associated with the recipient, and provide the user access to the audio file through, for example, playback of the audio included in the file. These systems and methods may be implemented through individual communications devices, such as an iPhone, through a telephone communications provider, or a combination of the same.
MainClaim: A method for accessing outgoing voice mail messages, the method comprising:recording an audio file corresponding to a voice message being left by a user during an outgoing telephone call to a recipient;linking the audio file to contact information associated with the recipient; andproviding the user access to the audio file.

2009/0170492	User-programmed automated communications	Apple Inc.	Lee; Michael M.	455	H04M	20071228	5	92%	☐

Abstract: A communications device may be programmed to initiate a communications operation when a particular condition is met. The user may set any suitable condition, including for example a date and time, location, event, received or sent communications operation, or any other suitable criteria. The user may select any suitable contact method for the communications operation, including for example telephone, voicemail, email, text message, chatting, fax, or any other suitable method.
MainClaim: A method for scheduling a communications operation to be performed by a communications device, the method comprising:receiving a condition for performing the scheduled communications operation;determining whether the condition is satisfied; andperforming the scheduled communications operation in response to determining that the received condition is satisfied.

7,570,959	Apparatus, method and computer program product providing location-enhanced contact list	Nokia Corporation	Nurmi; Mikko	455	H04W	20060419	0	100%	☐

Abstract: A device includes an interface to a communications network; at least one data processor; at least one memory coupled to the at least one data processor, the at least one memory storing a contact list; and a user interface coupled to the at least one data processor. The data processor is responsive to a user specifying a place to determine if another device associated with a person in the contact list is present at the specified place and, if so, to contact the other device via the interface to the communications network.
MainClaim: A method, comprising: in a first mode of operation, specifying a place via a user interface of a device that comprises communication functionality, where specifying comprises using a contact list that is stored in a memory of the device and that is displayed to a user of the device, where the place is presented to the user as a place name entry in the contact list; determining if another device that comprises communication functionality is currently located at the specified place; and placing a call to the other device if the other device is determined to be currently located at the specified place.

2009/0005068	Location-Based Emergency Information	APPLE INC.	Forstall; Scott | Christie; Gregory N. | Borchers; Robert E. | Chaudhri; Imran A.	455	H04Q	20080103	2	93%	☐

Abstract: Methods, systems, and apparatus, including computer program products, for location-based emergency information. A current geographic location of a device is determined. One or more first contact information items based on the determined geographic location are received at the device. The first contact information items include one or more contact information items associated with emergency services.
MainClaim: A method comprising:determining a current geographic location of a device; andreceiving one or more first contact information items based on the determined geographic location, the first contact information items comprising one or more contact information items associated with emergency services; andassociating at least one of the first contact information items with a user interface object in a user interface of the device.

7,299,009	Blue-tooth assisted wireless local area network (WLAN) home network systems	Nokia Corporation	Hussmann; Holger	455	H04B	20040225	0	100%	☐

Abstract: A method, device, and system use Bluetooth-assisted communication in a wireless local area network (WLAN). The method includes communicating with a wireless network using a wireless local area network (WLAN) interface, establishing an inactive mode based on communication activity with the wireless network, communicating with the wireless network using a Bluetooth interface, and establishing an active mode based on communication activity with the wireless network. The inactive mode disables the WLAN interface and the active mode enables the WLAN interface.
MainClaim: A method for Bluetooth-assisted communication in a wireless local area network (WLAN), the method comprising: communicating with a wireless network using a wireless local area network (WLAN) interface; establishing an inactive mode based on communication activity with the wireless network, wherein the inactive mode disables the WLAN interface; communicating with the wireless network using a Bluetooth interface; and establishing an active mobile based on communication activity with the wireless network, wherein the active mode enables the WLAN interface when a connection request is received by the Bluetooth interface from the wireless network, and the requested connection requires activity of the WLAN interface.

2008/0166967	Power efficient high speed communication systems and methods	Apple Inc.	McKillop; Christopher D.	455	H04B	20070518	1	92%	☐

Abstract: Systems and methods for utilizing multiple wireless communication protocols are provided. In one embodiment, the portable device includes circuitry for providing wireless communications utilizing a low power, relatively slow communications protocol, such as Bluetooth, to establish a communications path between two wireless devices. When high speed communications are preferred, the two devices can agree to switch to a different, high speed protocol, such as Wi-Fi, for communications. In this manner, power loss is minimized while one of the devices is seeking another communications node. In another embodiment, the high speed communications are performed utilizing a private network established between the two devices in which a non-standard protocol is utilized. That protocol could be, for example, a minimized subset of 802.11 instructions.
MainClaim: A method for efficiently controlling power during wireless communications between first and second devices, comprising:enabling the first device to seek the second device by transmitting a seek signal in accordance with a low power wireless protocol;performing a handshake operation with second device after the second device responds to the seek signal;establishing a communications dialog between the first and second devices in accordance with the low power wireless protocol; andcausing the first and second devices to switch to a high power, high speed wireless protocol in response to a command from the first device.

7,194,438	Electronic payment schemes in a mobile environment for short-range transactions	Nokia Corporation	Sovio; Sampo | Ekberg; Jan-Erik | Asokan; Nadarajah | Lahtinen; Pekka	705	G06Q	20040225	0	100%	☐

Abstract: A short-range transaction system enables a user to conduct transactions with a self-service terminal in a user-friendly environment without using currency. The user carries a portable smart card, which interacts with a mobile phone. After authentication via an RFID connection, the device MAC address and a security key (K) are imprinted in the card. In operation, the user waves the smart card past the self-service terminal and activates an RFID connection. The terminal sends the card a random number. The card returns the MAC address and a result (RES) computed using the hash value and the security key. The terminal using the MAC address and security key establishes a secure connection with the device. The terminal downloads the user's transaction interface from the device and displays the user interface at the self-service terminal. The user completes a transaction at the terminal via the user interface.
MainClaim: A method enabling a user in a mobile environment to conduct transactions via a self-service merchant terminal, comprising: a) maintaining a security key in a mobile phone device; b) transferring the security key and mobile phone identification into at least one user portable fob or pilot via an initial short-range radio link; c) transferring the security key and the mobile phone identification from the at least one user portable fob or pilot to a self-service merchant terminal through the initial short-range radio link; d) establishing a secure short-range connection between the self-service terminal and the mobile phone based on the transferred security key and the mobile phone identification information from the at least on user portable fob or pilot, wherein the initial short-range radio link has a significantly smaller radio coverage than the secure short-range connection, and e) verifying the presence of a correct pilot by the terminal via computing and comparing an expected response from the mobile phone with the transferred security key.

2010/0082490	Systems and methods for secure wireless transactions	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mayo; Sean A. | Nakajima; Taido L.	705	H04L	20080930	4	93%	☐

Abstract: There is provided systems and methods for to conducting wireless transactions using portable electronic

devices. Specifically, for example, a method of conducting a wireless transaction is provided that includes initiating a wireless transaction using a short range wireless communication system of a portable electronic device. The method also includes obtaining security information via at least one secondary system of the portable electronic device and utilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.

MainClaim: A method of conducting a wireless transaction, comprising:initiating a wireless transaction using a short range wireless communication system of a portable electronic device;obtaining security information via at least one secondary system of the portable electronic device; andutilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.

7,689,236	Media device and method of enhancing use of media device	Nokia Corporation	Matero; Juha | Matero; Jyrki	455	H04B	20050317	0	100%	☐

Abstract: A media device, a network element and a method of enhancing use of a media device are provided. The media device is configured to receive a broadcast media stream transmitted by a broadcast system at a given frequency and a service transmission over a radio interface of a cellular telecommunication system, the transmission being associated with the media stream and comprising information about frequencies used to transmit the media stream in different locations. The media device measures signal strength of the media transmission at the frequency the transmission is received and at least at one other frequency used for transmission of the transmission, compares the measured signal strengths and switches the reception of the media transmission to another frequency if the signal strength at said frequency is greater than the signal strength at the current frequency.

MainClaim: A method comprising: receiving, in a media device, a broadcast media stream transmitted by a broadcast system at a given frequency; receiving, in the media device, over a radio interface of a cellular telecommunication system, a service transmission associated with the broadcast media stream, the service transmission comprising information about frequencies used to transmit the broadcast media stream in different locations; measuring signal strength of the broadcast media transmission at the frequency the media transmission is received and at least at one other frequency used for transmission of the media transmission; comparing the measured signal strengths; and switching the reception of the media transmission to another frequency if the signal strength at said frequency is stronger than the signal strength at the current frequency.

2010/0076576	SYSTEMS, METHODS, AND DEVICES FOR PROVIDING BROADCAST MEDIA FROM A SELECTED SOURCE	Apple Inc.	Lee; Jeffery | Ingrassia, JR.; Michael Ignazio | Perry; Ryan	700	G06F	20080924	3	92%	☐

Abstract: A media device including a broadcast receiver that receives media from a broadcast source via a broadcast radio signal and a radio signal sensor that measures a signal characteristic of the received broadcast radio signal. The media device also includes a data transceiver that i) requests and retrieves a network address of a media server which provides the media via a network signal from a data network, ii) establishes a data connection with the media server, and iii) receives the media via the network signal from the media server. The media device further includes a selector that i) selects the broadcast radio signal when the signal characteristic satisfies a selection standard and ii) selecting the network signal when the signal characteristic does not satisfy the selection standard. The media device also includes a user interface that provides at least one of an audio and visual output based on the selected signal.

MainClaim: A media device comprising:a broadcast receiver for receiving media from a broadcast source via a broadcast radio signal;a radio signal sensor for measuring a signal characteristic of the received broadcast radio signal;a data transceiver for i) requesting and retrieving a network address of a media server providing the media via a network signal from a data network, ii) establishing a data connection with the media server, andiii) receiving the media via the network signal from the media server; anda selector for i) selecting the broadcast radio signal when the signal characteristic satisfies a selection standard and ii) selecting the network signal when the signal characteristic does not satisfy the selection standard; anda user interface for providing at least one of an audio and visual output based on the selected signal.

6,941,478	System and method for providing exploit protection with message tracking	Nokia, Inc.	Card; James | Smith; Gregory J.	713	G06F	20021211	0	100%	☐

Abstract: A method and system for providing protection from exploits to devices connected to a network. The system and method include a component for determining whether an encapsulation has been applied to an attachment associated with a message and unencapsulating such encapsulated attachment, and a component that performs at least one decompression of the attachment when the attachment is compressed. If it is determined that the message, including the attachment, is to be scanned, a component is included that determines whether a header, body, and/or attachment of the message includes exploits. A device that receives messages that are directed to the network employs the components above to provide exploit protection for at least one of the messages.

MainClaim: A system for providing protection from an exploit to a device connected to a network, comprising:

a content filter that receives a message that is directed to the device;

a message tracker that is coupled to the content filter and is configured to perform actions, including:

determining a size of a message component associated with the message;

if the size is less than or equal to a pre-determined size; identifying the message as unscanned;

if the size exceeds the pre-determined size, then:

determining a first value associated with the message, and if the first value is the same as a stored second value associated with the message, identifying the message as a scanned message;

if the size exceeds the pre-determined size, then:

determining the first value associated with the message, and if the first value is different from the stored second value, identifying the message as unscanned; and

a scanner component that is coupled to the message tracker and that is configured to receive the unscanned message and to determine whether at least one element of the message includes an exploit.

7,711,829	Method and system for preventing a timeout from reaching a network host	Apple Inc.	Cheshire; Stuart David	709	G06F	20080108	2	94%	☐

Abstract: A method and system for preventing a timeout from reaching a network host when bringing up a down link that is slow to waken. The method generally comprises receiving a request to access an information. If a link along a path to a remote computer containing the information is down, the link is established while concurrently returning a plurality of imposter responses, such as domain names, until the network link is established. Software implementing this method may be stored and executed in any network host. This method is particularly advantageous when waiting for a dial-up telephone connection to a network to be established.
MainClaim: A method comprising: receiving a request to access an information according to first data; sending one or more imposter responses while waiting for connection to provide the information, wherein the one or more imposter responses have second data to resend the request according to the second data.

7,321,933	Method and system for preventing a timeout from reaching a network host	Apple Inc.	Cheshire; Stuart David	709	G06F	20050120	2	94%	☐

Abstract: A method and system for preventing a timeout from reaching a network host when bringing up a down link that is slow to waken. The method generally comprises receiving a request to access an information. If a link along a path to a remote computer containing the information is down, the link is established while concurrently returning a plurality of imposter responses, such as domain names, until the network link is established. Software implementing this method may be stored and executed in any network host. This method is particularly advantageous when waiting for a dial-up telephone connection to a network to be established.
MainClaim: A method of execution of computer readable instructions by a processor comprising: receiving a first request to access an information on a remote computer identified by a domain name; if a link to the remote computer containing the information is down, establishing the link while sending one or more imposter domain names until the link is established.

7,702,759	Presentation during network address acquisition	Apple Inc.	Cheshire; Stuart	709	G06F	20060524	2	94%	☐

Abstract: A method and apparatus for instructing a processing system to present information. In one embodiment of the invention a server processing system on a network uses the DHCP protocol to provide network configuration information for a client processing system. The server processing system uses DHCP option code 56 to include presentation information with the configuration information sent to the client. Option code 56 allows for text messages to be presented by the client processing system and also allows URL-formatted text that may cause web pages or other internet resources to be presented by the client processing system. Because the presentation information is included with the network configuration information, information is presented when the client processing system uses the configuration information (e.g., upon network initialization).
MainClaim: A machine-implemented method comprising: receiving a request for network configuration information from a client processing system; and sending network configuration information from a processing system to the client processing system using a protocol to configure a network interface device of the client processing system during a network initialization of the client processing system, in order to enable the client processing system to access a network via the network interface device subsequently, wherein the network configuration information includes added to it, in a manner compatible with the protocol, at least one of presentation information or an address representative of said presentation information, wherein said presentation information is automatically presented in response to receiving the presentation information or an address representative of the presentation information on the client processing system when the client processing system uses the network configuration information.

6,985,697	Method and system for wirelessly managing the operation of a network appliance over a limited distance	Nokia, Inc.	Smith; Gregory J | Scott; Robert Paxton	455	H04B	20030922	0	100%	☐

Abstract: A wireless communication interface in a network appliance that enables secure wireless management of the network appliance over a relatively limited (short) distance with a mobile node. The operator of the mobile node is authenticated and communication between the network appliance and the mobile node is encrypted. Even if an

unauthorized person was able to be positioned in relatively close proximity to a network appliance such as within the physical confines of a data center, these authentication and encryption measures would make it extremely difficult for unauthorized wireless management of the operation of the network appliance.
MainClaim: A method for enabling management of a network appliance with a mobile node, comprising

enabling the network appliance to provide a beacon, wherein the beacon is created by a radio signal that is generated with relatively low power;

if the mobile node receives the beacon, enabling the mobile node to pair with the network appliance;

if the mobile node is paired with the network appliance, pushing an application from the mobile node to the network appliance; and

enabling the mobile node to wirelessly communicate at least one management operation to the pushed application over a relatively short distance, wherein the management operation is provided to the network appliance for execution.

2009/0209245	METHOD AND APPARATUS FOR CONFIGURING A WIRELESS DEVICE THROUGH REVERSE ADVERTISING	APPLE INC.	Cheshire; Stuart D.	455	H04M	20090429	1	94%	☐

Abstract: One embodiment of the present invention provides a system that uses reverse advertising to configure a new wireless device to join an existing wireless network. During operation, the new wireless device broadcasts an advertisement for itself. In response to the advertisement, the new wireless device receives information from an existing wireless device on the existing wireless network. This information specifies how to join the existing wireless network. Next, the new wireless device uses the information to configure itself to join the existing wireless network.
MainClaim: A method for using reverse advertising to configure a new wireless device to join an existing wireless network, comprising:broadcasting an advertisement for the new wireless device on a new wireless network, wherein the new wireless network is separate from the existing wireless network;in response to the advertisement, receiving information from an existing wireless device that is on the existing wireless network, wherein the information specifies how to join the existing wireless network, and wherein receiving the information involves receiving the information from the existing wireless device on the new wireless network; andusing the information to configure the new wireless device to join the existing wireless network.

7,570,939	RFID network arrangement	Apple Inc.	Culbert; Michael	455	H04M	20050906	1	93%	☐

Abstract: A system for automatic configuration and authentication of network devices is disclosed. A network base station, e.g., a wireless router, includes an RFID transceiver. A network device includes an RFID tag. Then the network device is brought into proximity with the base station, an exchange of information takes place between the RFID transceiver in the base station and the RFID tag in the device. When the network device is powered on, it reads the information in its RFID tag and uses this information to establish a limited connection to the base station. Once connected, the base station and network device exchange authentication and encryption parameters over the limited connection and thus establish a fully functional and secure network connection between the network base station and the network device.
MainClaim: A method for configuring a wireless networking device, the method comprising: interacting with an RFID tag in the wireless networking device when the networking device is brought into physical proximity with a wireless networking base station, such that the interaction causes configuration information to be exchanged between the RFID tag and an RFID transceiver in the base station that facilitates establishment of a wireless network connection between the networking device and the base station; and storing the configuration information to the RFID tag persistently, whereby future establishment of a wireless connection between the networking device and the base station is established without interacting with an RFID transceiver.

2007/0054616	RFID network arrangement	Apple Computer, Inc.	Culbert; Michael	455	H04B	20050906	1	93%	☐

Abstract: A system for automatic configuration and authentication of network devices is disclosed. A network base station, e.g., a wireless router, includes an RFID transceiver. A network device includes an RFID tag. Then the network device is brought into proximity with the base station, an exchange of information takes place between the RFID transceiver in the base station and the RFID tag in the device. When the network device is powered on, it reads the information in its RFID tag and uses this information to establish a limited connection to the base station. Once connected, the base station and network device exchange authentication and encryption parameters over the limited connection and thus establish a fully functional and secure network connection between the network base station and the network device.
MainClaim: A method for configuring a wireless networking device, the method comprising interacting with an RFID tag in the wireless networking device when the networking device is brought into physical proximity with a wireless networking base station, such that the interaction causes information to be exchanged between the RFID tag and an RFID transceiver in the base station that facilitates establishment of a wireless network connection between the networking device and the base station.

7,516,236	Method to improve perceived access speed to data network content using a multicast channel and local cache	Nokia Corporation	Walsh; Rod | Grundstrom; Mika | Hakulinen; Harri	709	G06F	20011221	0	100%	☐

Abstract: A method for increasing a user's perceived access speed to content available from a data network. The method utilizes a multicast channel and the selection of group data to be sent over that channel.
MainClaim: A method, comprising: monitoring an interaction network; obtaining one or more measurement values corresponding to the monitoring of the interaction network; selecting data, wherein selection is based upon one or more of the measurement values corresponding to the monitoring of the interaction network; and sending the selected data over a multicast network, wherein the data is selected based upon number of requests for the data that originate from a broadcast cell.

7,702,759	Presentation during network address acquisition	Apple Inc.	Cheshire; Stuart	709	G06F	20060524	2	92%	☐

Abstract: A method and apparatus for instructing a processing system to present information. In one embodiment of the invention a server processing system on a network uses the DHCP protocol to provide network configuration information for a client processing system. The server processing system uses DHCP option code 56 to include presentation information with the configuration information sent to the client. Option code 56 allows for text messages to be presented by the client processing system and also allows URL-formatted text that may cause web pages or other internet resources to be presented by the client processing system. Because the presentation information is included with the network configuration information, information is presented when the client processing system uses the configuration information (e.g., upon network initialization).
MainClaim: A machine-implemented method comprising: receiving a request for network configuration information from a client processing system; and sending network configuration information from a processing system to the client processing system using a protocol to configure a network interface device of the client processing system during a network initialization of the client processing system, in order to enable the client processing system to access a network via the network interface device subsequently, wherein the network configuration information includes added to it, in a manner compatible with the protocol, at least one of presentation information or an address representative of said presentation information, wherein said presentation information is automatically presented in response to receiving the presentation information or an address representative of the presentation information on the client processing system when the client processing system uses the network configuration information.

6,327,479	Procedure and system for the transmission of a short message in a telecommunication network	Nokia Networks Oy	Mikkola; Orvo	455	H04Q	20000313	0	100%	☐

Abstract: Procedure and system for the transmission of a short message in a telecommunication network comprising a mobile communication network (1) which comprises a first short-message service center (2); a telephone network (3) in which digital signalling is used and which is linked to the mobile communication network; and a number of terminal device (4; 41, 42, . . . , 4n) compatible with the mobile communication and/or telephone network, in which procedure the short message is generated by means of a terminal device and sent to the intended receiver. According to the invention, the telephone network (3) is connected to the first short-message service centre (2) via a first data communication link (6). The subscriber type identifier of the receiver is added to the short message, and the short message is transmitted to the first short-message service centre (2). The receiver's subscriber type is checked in the short-message service centre and, based on this, the short message is transmitted by the appropriate route to the intended receiver.
MainClaim: A method for the transmission of a short message in a telecommunication network comprising:

coupling a mobile communication network, which comprises a first short-message service center, with a telephone network, wherein digital signalling is used;

generating a short message by a terminal device and sending the short message to an intended receiver and a receiver's subscriber type is checked in a short-message service centre, wherein the terminal device being compatible with the mobile communication and telephone network;

connecting the telephone network to the first short-message service centre via a first data communication link;

adding the receiver's subscriber type identifier to the short message;

transmitting the short message to the first short-message service centre; and

if the receiver is a subscriber in the telephone network, then starting a call setup to an intended subscriber in the telephone network and the short message is transmitted during the call setup to the intended subscriber;

if the receiver is a subscriber in the mobile communication network, then transmitting the short message to the intended receiver in accordance with the short message specifications for the mobile communication network.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications

device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,134,142	System and method for providing exploit protection for networks	Nokia Inc.	Smith; Gregory J.	726	H04L	20020412	0	100%	☐

Abstract: A method and system for providing protection from exploits to devices connected to a network. The system and method include a component for determining whether an encapsulation has been applied to an attachment and unencapsulating such encapsulated attachments, a component that performs at least one decompression of the attachment when the attachment is compressed, a component that determines whether a header, body, and/or attachment of a message includes an exploit, and a component that holds and optionally cleans messages that include exploits. A device that receives messages that are directed to the network employs the components above to provide exploit protection for at least one of the messages.
MainClaim: A system for providing protection from exploits to devices connected to a network, comprising: (a) a content filter that receives a message that is directed to at least one of the devices and that includes a header, a body, and an attachment, wherein the content filter determines an encapsulation that has been applied to the attachment prior to the system receiving the message and unencapsulates the attachment; (b) a decompression component that is coupled to the content filter and that performs at least one decompression of the attachment when the attachment is compressed; (c) a scanner component that is coupled to the decompression component and that determines whether the header includes an exploit, wherein exploit protection software from at least two vendors is employed and wherein the header includes a field having a defined size and the scanner determines that the header includes the exploit when a size of data in the field is other than the defined size; (d) a quarantine component that is coupled to the scanner component and that holds the message when the message includes an exploit; and (e) a device that receives messages that are directed to the network and that employs at least the scanner component to provide exploit protection for at least one of the messages.

7,321,933	Method and system for preventing a timeout from reaching a network host	Apple Inc.	Cheshire; Stuart David	709	G06F	20050120	2	94%	☐

Abstract: A method and system for preventing a timeout from reaching a network host when bringing up a down link that is slow to waken. The method generally comprises receiving a request to access an information. If a link along a path to a remote computer containing the information is down, the link is established while concurrently returning a plurality of imposter responses, such as domain names, until the network link is established. Software implementing this method may be stored and executed in any network host. This method is particularly advantageous when waiting for a dial-up telephone connection to a network to be established.
MainClaim: A method of execution of computer readable instructions by a processor comprising: receiving a first request to access an information on a remote computer identified by a domain name; if a link to the remote computer containing the information is down, establishing the link while sending one or more imposter domain names until the link is established.

7,711,829	Method and system for preventing a timeout from reaching a network host	Apple Inc.	Cheshire; Stuart David	709	G06F	20080108	2	94%	☐

Abstract: A method and system for preventing a timeout from reaching a network host when bringing up a down link that is slow to waken. The method generally comprises receiving a request to access an information. If a link along a path to a remote computer containing the information is down, the link is established while concurrently returning a plurality of imposter responses, such as domain names, until the network link is established. Software implementing this method may be stored and executed in any network host. This method is particularly advantageous when waiting for a dial-up telephone connection to a network to be established.
MainClaim: A method comprising: receiving a request to access an information according to first data; sending one or more imposter responses while waiting for connection to provide the information, wherein the one or more imposter responses have second data to resend the request according to the second data.

2010/0088387	Email Notification Proxy	APPLE INC.	Calamera; Pablo M.	709	G06F	20081003	3	93%	☐

Abstract: Among other things, techniques and systems are disclosed for exchanging notifications and data between a client device and a server. A system includes a server configured to maintain a first persistent connection to a mobile electronic device. The first persistent connection is configured to push at least service specific data to the mobile electronic device. The server is further configured to maintain a second persistent connection to a third party server. The second persistent connection is configured to monitor for availability, at the third party server, of new data associated with the mobile electronic device. The server is also configured to notify the mobile electronic device via the first persistent connection when new data becomes available at the third party server.
MainClaim: A system comprising:a server configured to:maintain a first persistent connection to a mobile electronic

device, wherein the first persistent connection is configured to push at least service specific data to the mobile electronic device;maintain a second persistent connection to a third party server, wherein the second persistent connection is configured to monitor for availability, at the third party server, of new data associated with the mobile electronic device; andnotify the mobile electronic device via the first persistent connection when new data associated with the mobile electronic device becomes available at the third party server.

7,124,439	Secure user action request indicator	Nokia Mobile Phones, Ltd.	Lukkaroinen; Mikko | Inget; Virve	726	G06F	20000315	0	100%	☐

Abstract: A mobile communications device is adapted to use applications resident on a remote network server. The display of the mobile device is divided into static and dynamic display zones. Inquiries originating externally from the mobile device are identified and restrictively routed only to the dynamic display. Internally generated inquiries trigger a indicator symbol within the static display. In this manner bogus requests for confidential identifiers may be avoided.
MainClaim: In a mobile communications device adapted to allow a user to communicate interactively with a remote network server, a system, within said mobile device, for indicating the authenticity of inquiries for confidential identity codes comprising: a control processor within said mobile device for operating said mobile device, said processor adapted to identify said inquiries for confidential identity codes as externally generated or internally generated; a display within said mobile device for presenting information to the user, said display divided into first and second discrete display zones; and routing means within said mobile device constructed to send externally generated information only to said first display zone; wherein said control processor generates an indication symbol in said second display zone when the inquiry is internally generated to indicate to the user that said inquiry is authentic.

2010/0082490	Systems and methods for secure wireless transactions	Apple Inc.	Rosenblatt; Michael | Lin; Gloria | Mayo; Sean A. | Nakajima; Taido L.	705	H04L	20080930	4	92%	☐

Abstract: There is provided systems and methods for to conducting wireless transactions using portable electronic devices. Specifically, for example, a method of conducting a wireless transaction is provided that includes initiating a wireless transaction using a short range wireless communication system of a portable electronic device. The method also includes obtaining security information via at least one secondary system of the portable electronic device and utilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.
MainClaim: A method of conducting a wireless transaction, comprising:initiating a wireless transaction using a short range wireless communication system of a portable electronic device;obtaining security information via at least one secondary system of the portable electronic device; andutilizing the security information obtained via the at least one secondary system to authenticate the portable electronic device for the wireless transaction.

6,757,533	Rich calling line handling in call setup signalling	Nokia Corporation	Lampela; Juha | Kalliokulju; Juha | Koskinen; Topi | Kiss; Krisztian	455	H04M	20020123	0	100%	☐

Abstract: A. telecommunications system, utilizing rich calling line handling in call setup signaling to forward RCLIP (Rich Calling Line Identification Presentation) data, forwards at least one call setup signal from the calling party terminal of a caller to a called party terminal of a called party via a network upon the caller desiring to initiate a called without RCLIP data. Upon the caller desiring to initiate a call with RCLIP data, the RCLIP data can either be forwarded with at least one call setup signal directly from the calling party terminal to the called party terminal or can be forwarded with the RCLIP data being attached by the network in accordance with an indicator from the calling party, the RCLIP data being stored in a database in the network. The RCLIP data can be presented to the called party immediately upon the called party terminal ringing/alerting.
MainClaim: A telecommunications system utilizing rich calling line handling in call setup signaling to forward RCLIP (Rich Calling Line Identification Presentation) data, the system comprising:

a calling party terminal of a caller;

a network, the calling party terminal being selectively connected thereto; and

a called party terminal of a called party, the network being selectively connected to the called party terminal;

wherein, upon the caller desiring to initiate a call to the called party without RCLIP data, the calling party terminal forwards at least one call setup signal without attached RCLIP data via the network to the called party terminal; and

wherein, upon the caller desiring to initiate a call to the called party with RCLIP data with caller generated RCLIP data, the calling party forwards at least one call setup signal with attached RCLIP data to the network which in turn forwards the at least one call setup signal with attached RCLIP data to the called party terminal; and

wherein, upon the caller desiring to initiate a call to the called party with RCLIP data stored in an RCLIP database in the network, the calling party forwards at least one call setup signal with an indicator wherein the indicator is included within a header forwarded from the calling party terminal to the network indicating which part of RCLIP data is to be forwarded to the called party to the network and the network accesses a RCLIP database to recover part of RCLIP data corresponding to the indicator forwarded by the calling party and forwards this RCLIP data attached to the at least one call setup signal to the called party terminal.

	TRANSPARENTLY								

2009/0168757	ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,020,497	Programming multiple ringing tones of a terminal	Nokia Corporation	Deeds; Douglas	455	H04Q	20020523	0	100%	☐

Abstract: A terminal adapted to communicate via a communications system includes a memory capable of storing a plurality of ringing tones, where the plurality of ringing tones includes at least one set of at least two ringing tones associated with at least one event. The terminal also includes a controller capable of choosing a ringing tone from the set(s) of ringing tones based upon a predefined selection criteria, such as based upon a random search criteria or a sequential search criteria. The controller is further capable of generating signals directed to an output reproduction device that is capable of generating the chosen ringing tone in response to the terminal receiving an event associated with the at least one set of ringing tones including the chosen ringing tone.
MainClaim: A terminal adapted to communicate via a communications system, wherein the terminal comprises:

a memory capable of storing a plurality of ringing tones, wherein the plurality of ringing tones includes at least one set of at least two ringing tones, and wherein the at least one set of ringing tones is associated with at least one event; and

a controller capable of choosing a ringing tone from the at least one set of ringing tones, wherein said controller chooses the ringing tone based upon a predefined selection criteria, wherein said controller is capable of generating signals directed to an output reproduction device that is capable of reproducing the chosen ringing tone in response to the terminal receiving an event associated with the at least one set of ringing tones including the chosen ringing tone, and wherein said controller is capable of choosing another ringing tone from the at least one set of ringing tones after the output reproduction device reproduces the ringing tone that was previously chosen by said controller.

2009/0186642	MULTIMEDIA DATA TRANSFER FOR A PERSONAL COMMUNICATION DEVICE	Apple Inc.	FADELL; Anthony M.	455	H04W	20090327	3	92%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: A method for sending multimedia data from a first personal communication device to at least another personal communication device over a voice channel, comprising:at the first personal communication device, selecting multimedia data by a user;vocalizing the selected multimedia data; andpassing the vocalized multimedia data from the first portable communication device to the second portable communication device over the voice channel concurrent with another active communication.

7,546,083	Multimedia data transfer for a personal communication device	Apple Inc.	Fadell; Anthony M.	455	H04B	20060124	1	92%	☐

Abstract: In a portable multimedia device, data is passed between a sender and receiver unit by way of voice channel only. Multimedia data is vocalized and then forwarded to a receiver unit by way of the voice channel without the use of a backend server. Once received at the receiver unit, the vocalized data can be converted to an audio signal that can then output by way of an audio output device (such as a speaker, earphone, etc.).
MainClaim: Computer readable medium arranged to store instructions executable by a processor for transferring multimedia data between a first personal communication device and at least another personal communication device without a backend server, comprising: computer code for vocalizing the multimedia data by the first personal communication device; computer code for selecting by a user of the first personal communication device a manner in which the vocalized multimedia data is processed by the at least another personal communication device; computer code for generating a prompt indicating the manner selected by the user in which the at least another personal communication device processes the vocalized multimedia data, wherein the at least another personal communication device processes the vocalized multimedia data only in accordance with the user generated prompt; and computer code for passing only the vocalized multimedia data and the prompt to the at least another personal communication device from the first personal communication device using only a voice channel.

6,983,145	Method for handling a call when destined subscriber is unable to answer	Nokia Corporation	Uskela; Sami	455	H04Q	20000811	0	100%	☐

Abstract: The present invention relates to a telephone system including at least a terminal used by subscriber A, a terminal used by subscriber B, a switching center for setting up a call between subscribers A and B, and a connection for connecting subscriber A's terminal to an audiovisual source when subscriber B is unable to answer. To offer a waiting subscriber a more user-friendly service than before, the system includes a plural number of alternative AV sources, the connection being arranged to connect subscriber A's terminal to the AV source chosen by subscriber A when subscriber B is unable to answer.
MainClaim: A method for handling a call made by subscriber A using a subscriber terminal, wherein the method comprises

providing said subscriber terminal of the subscriber A with at least one AV source for providing audio and/or visual information to said subscriber terminal of the subscriber A;

offering a plural number of alternative AV sources to subscriber A when subscriber B is unable to answer;

receiving information about the AV source chosen by subscriber A; and

connecting the terminal used by subscriber A, or an AV part of the terminal, to the AV source chosen by subscriber A for the time subscriber A waits for subscriber B to answer or to become available, after which the call is connected between subscribers A and B.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,441,035	Reliable server pool	Nokia Corporation	Lakshmi Narayanan; Ram Gopal | Sengodan; Senthil	709	G06F	20030204	0	100%	☐

Abstract: A method and system for adding and monitoring a server to an existing server pool are disclosed. A joining server registers with a server within the server pool. The joining server is authenticated by a server within the server pool. When the joining server receives the list of all active servers within the server pool, the joining server computes a new identification for itself, assigns that identification to itself, and then determines a caretaker server to monitor the joining server. Once the registration is successful, the newly joined server can communicate within the server pool and keep current of all events and changing conditions of the server pool.
MainClaim: A method comprising: adding a new server to an existing server pool; sending a request for registration to a predetermined server; receiving from the predetermined server a response with a list of active servers; computing a first identification based on the list of active servers; assigning the first identification to the new server; and determining a caretaker server based on the assigned first identification of the new server.

2009/0228566	Automatic notification system and process	APPLE INC.	Sharp; Christopher Brooke | McCarthy; Brendan A.	709	G06F	20080304	18	92%	☐

Abstract: Receiving a notification message by a mobile subscriber can include establishing a session with a notification service; maintaining a persistent communication connection with the notification service after the session is established; subscribing to a node hosted by the notification service, wherein the node is pre-provisioned for use by a mobile subscriber; and receiving from the notification service a notification message corresponding to the subscribed node. Further, a message can be transmitted over the communication connection to the notification service at a predetermined interval and it can be determined whether the communication connection is viable. Additionally, it can be determined that the communication connection is no longer viable if no response is received from the notification service, the period of the predetermined interval can be decreased, and another session with the notification service can be established.
MainClaim: A method of receiving a notification message by a mobile subscriber, the method comprising:establishing a session with a notification service;maintaining a persistent communication connection with the notification service after the session is established;subscribing to a node hosted by the notification service, wherein the node is pre-provisioned

for use by a mobile subscriber; andreceiving from the notification service a notification message corresponding to the subscribed node.

6,668,176	Fixed wireless terminal	Nokia Mobile Phones Limited	Koski; Vesa J | Keranen; Keijo | Kinnunen; Juha T | Teppola; Reijo | Viitamaki; Marko	379	H04Q	19990917	0	100%	☐

Abstract: A fixed wireless terminal such as a wireless local loop terminal comprising: memory (210) storing characteristics for at least one network, means (214, 220) for accepting network information particular to a subscriber and processing means (208) for reading the subscriber network information and, on the basis of the subscriber network information, selecting appropriate network characteristics for subsequent use by the terminal. Preferably the processing means (208) is arranged to configure a subscriber line interface circuit (212) in accordance with the selected appropriate network characteristics, such as ringing tone, dialling tone, busy tone etc.
MainClaim: Apparatus for enabling a telephone system, adapted for use with a public switched telephone network to operate over a radio telecommunications network, the apparatus comprising:

a connector for connecting a subscriber device to the apparatus;

an antenna for coupling the apparatus to the radio telecommunications network; and

a subscriber line interface device for providing network dependent characteristics, the subscriber line interface including:

signal generating means for generating a signal to produce a dialing tone on a subscriber device and for generating a signal to cause ringing of the subscriber device on receipt of an incoming call signal from the radio telecommunications system;

signal converting means for converting a dialing signal generated by a subscriber device into a code signal for accessing the radio telecommunications network; and

detector means for detecting when a subscriber device has been activated to answer an incoming call or making an outgoing call; and control means for reading network intonation specific to a subscriber and configuring the subscriber line interface device accordingly.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	93%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,472,177	System and method for selecting of versions for SNMP communication	Nokia Inc.	Bose; Vaijayanti	709	G06F	20040623	0	100%	☐

Abstract: A system and method are directed towards enabling and/or disabling a selection of a version of a network management protocol, such as SNMP. When a networking system is configured using an earlier version of SNMP, such as version 1 or 2, and is to be reconfigured to employ a later version such as version 3, certain options are to be reconfigured. Such options for example, include usage of a community string. When the networking system is to be configured back to the earlier version, the options are again reconfigured. The present invention enables an administrator of the computing system to manage such changes, in part, by abstracting the switching details, without the need to track a progression of events. Moreover, a state of the versions is tracked, such that if the networking system is switched back to version 1 or 2, the last configured community string value is restored.
MainClaim: A method comprising: providing an interface configured to enable selecting from a plurality of versions of a network management protocol; using the interface to select a first version of the network management protocol from the plurality of versions; providing, through the interface, an option associated with the selected first version; inhibiting access within the interface to another option associated with another version of the network management protocol within the plurality of versions; and saving a configuration associated with the first version, wherein the configuration is based, in part, on a selection of the provided option.

	NETWORK IDENTIFICATION								

2009/0006600	AND CONFIGURATION USING NETWORK SIGNATURE	APPLE INC.	Siegmund; Dieter	709	G06F	20071214	1	96%	☐

Abstract: Methods, computer program products, systems and data structures for generating a signature for a network are described. A network signature may include, for example, network information associated with a network (e.g., IP address, MAC address, domain name, DNS name, routing information, phone number, etc.). A signature of a network that has previously been created can be stored to enable identification of the network in the future and to record parameters, settings, properties and attributes previously used for that network.
MainClaim: A method comprising:identifying one or more networks, each network being associated with one or more network devices;determining one or more properties associated with a network; andcreating a unique signature based on the one or more properties.

5,852,777	Method and apparatus for screening a call in a wireless system	Nokia Mobile Phones Limited	Harrison; Peter	455	H04M	19960611	0	100%	☐

Abstract: A method and apparatus for screening a call in a telecommunications network having a first system comprising a first subscriber station and a second system comprising a second subscriber station, associated with the first subscriber station by a predetermined relationship. Each subscriber station in the first system has a unique subscriber number and the second system having a general number for all subscriber stations. In the method and apparatus, call setup requests for calls to the general number of the second system are screened to determine if the call was originally made to the number of the first subscriber station and then forwarded to the general number of the second system, or if the call was originally made to the general number. If the call was originally made to the first subscriber station, only the second subscriber station is alerted. If the call was originally made to the general number, all the subscriber stations in the second system are alerted.
MainClaim: In a telecommunications network having a first system comprising a first plurality of subscriber stations, each assigned a unique subscriber number and a second system comprising a second plurality of subscriber stations, all assigned a single common subscriber number, wherein a first and second subscriber station of said first and second plurality of subscriber stations, respectively, are associated by a predetermined relationship, a method of screening a call, said method comprising the steps of:

receiving a setup request for a call to the common subscriber number assigned to said second plurality of subscriber stations;

determining whether said setup request was forwarded following a call setup attempt to a selected subscriber number assigned to said first subscriber station; and,

if it is so determined, selectively alerting only said second subscriber station of said second plurality of subscriber stations;

else, alerting each of the second plurality of subscriber stations.

2009/0168757	TRANSPARENTLY ROUTING A TELEPHONE CALL BETWEEN MOBILE AND VOIP SERVICES	Apple Inc.	Bush; Jeff	370	H04L	20080310	13	92%	☐

Abstract: Systems and methods are provided for routing a telephone call intended for a communications device between a mobile network and a VOIP service, where the mobile network and VOIP service may be connected through the PSTN. The VOIP service may receive telephone calls and may direct the telephone calls to the communications device through the Internet when a stable Internet connection is present, and may route telephone calls to the mobile network through the PSTN otherwise. When a call is routed to the mobile network, the mobile network may make the call the communications device to establish a telephone connection through a cellular link. While a telephone call is in progress, the VOIP service and communications device may be configured to seamlessly switch the telephone call to a different service depending on the status of the communications device's Internet connection.
MainClaim: A method of routing a telephone call intended for a communications device between a VOIP service and a mobile network, the method comprising:receiving the telephone call at the VOIP service;determining whether the communications device has a stable Internet connection;directing the telephone call to the communications device through the Internet connection when the communications device has a stable Internet connection; androuting the telephone call from the VOIP service to the mobile network through a PSTN when the communications device does not have a stable Internet connection.

7,076,645	Method of rebooting a multi-device cluster while maintaining cluster operation	Nokia Inc.	Mittal; Ajay | Xu; Laura | Koneru; Srikanth	713	G06F	20030625	0	100%	☐

Abstract: The present invention is directed at rebooting a cluster while maintaining cluster operation. Cluster operation is automatically maintained during the reboot since at least one member of the cluster stays active during the process. An administrator triggers the reboot process and then does not have to perform any other steps during the reboot process. An algorithm executes which reboots members of the cluster at different times, while always maintaining operation of at least one member of the cluster.
MainClaim: A method for rebooting a cluster, comprising: initiating a reboot of the cluster; determining cluster members; and rebooting each of the cluster members while at least one of the cluster members remains active while

the other cluster members are being rebooted, wherein rebooting each of the cluster members comprises removing the cluster member being rebooted and determining when the removed cluster member has been rebooted.

2009/0228459	AUTOMATIC CONFIGURATION OF COMPUTERS IN A NETWORK	APPLE INC.	ALBOUZE; JEAN FRANCOIS | MARGOLIS; MICHAEL R.	707	G06F	20090519	1	92%	☐

Abstract: A system for automatic configuration of computers on a network is disclosed. In a first aspect a storage area network is disclosed. The network comprises at least one controller; and a plurality of clients coupled to the at least one controller. The network includes a storage device coupled to the at least one controller and the plurality of clients. The controller upon attachment to the network registers itself and notifies the plurality of clients. The plurality of clients then interrogates the controller. Each of the plurality of clients updates its configuration based upon the interrogation. In a second aspect, a method for configuration of computers in a network is disclosed. The method comprises registering at least one controller upon attachment to the network and notifying a plurality of clients by the at least one controller. The method includes interrogating the at least one controller by each of the plurality of clients. The plurality of clients are updated based upon the interrogation.
MainClaim: A network comprising:at least one controller; anda plurality of clients coupled to the at least one controller; wherein the at least one controller upon attachment to the network registers itself and notifies the plurality of clients, and each of the plurality of clients interrogates the at least one controller and each of the plurality of clients updates its configuration based upon the interrogation.

7,133,659	Methods of operating a reservation system using electronic device cover with embedded transponder	Nokia Mobile Phones Limited	Zalewski; Thomas W. | Pennington; Michael C | Roberts; Randall C. | Shaw; Steven A.	455	H04M	20040106	0	100%	☐

Abstract: A changeable cover for an electronic device and method of using same in a payment system is provided. The cover has a transponder responsive to interrogation by an electric field. The cover provides an electronic identification number and other information in response to the interrogation signal. Also provided is a system for making payments, comprising at least one mobile station (4) which has an associated cover (100) for providing local data transfer. The system also comprises at least one point of sale terminal or the like, which has a second transceiver for providing data transfer.
MainClaim: A method for operating a reservation system that includes a first user terminal and a second terminal, the first user terminal having at least one application, the method comprising the steps of: establishing a communication link from the at least one application to the second terminal through a wireless interface; receiving a menu message on said first user terminal comprising a questions regarding needs of user in order to create a criteria information message; sending said criteria information message comprising information regarding needs of the user to said second terminal; receiving a second menu message on said first user terminal comprising a plurality of available items meeting said user criteria; selecting one or more items from said plurality of items; sending a selection message comprising information regarding said selected items to said second terminal receiving an amount to pay message on first user terminal in response to said selection message comprising transaction information; entering information into the first user terminal specifying that a payment be made from the first user terminal to the second terminal; establishing a communication link from the at least one application to the second terminal through an electromagnetic induction interrogator; registering a payment transaction with the second terminal and the at least one application; and receiving location information of said selected item and an electronic code for unlocking said item.

2010/0082485	Portable point of purchase devices and methods	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	4	94%	☐

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A method of conducting a sales transaction, the method comprising:scanning identification information for an article through a handheld point of purchase device;displaying a purchase price on the handheld point of purchase device, wherein the purchase price is determined using the identification information;acquiring payment information for the purchase price through the handheld point of purchase device; andobtaining an authorization for the payment information to complete a payment for purchasing the article.

2010/0082444	Portable point of purchase user interfaces	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony |	705	G06Q	20080930	4	94%	☐

			Rosenblatt; Michael						

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A handheld electronic device, comprising:a first input configured to scan identification information for an article;a processor configured to create a sales order based on the identification information;a graphical user interface configured to display the sales order and to facilitate user selection of a payment type from a plurality of displayed payment types available to pay for the sales order;a second input configured acquire payment information corresponding to the payment type; anda communication interface configured to transmit the payment information to a financial institution to obtain authorization for processing a payment for the sales order.

7,155,199	System and method of making payments using an electronic device cover with embedded transponder	Nokia Mobile Phones Limited	Zalewski; Thomas W. | Pennington; Michael C | Roberts; Randall C. | Shaw; Steven A.	455	H04M	20040106	0	100%	☐

Abstract: A changeable cover for an electronic device and method of using same in a payment system is provided. The cover has a transponder responsive to interrogation by an electric field. The cover provides an electronic identification number and other information in response to the interrogation signal. Also provided is a system for making payments, comprising at least one mobile station (4) which has an associated cover (100) for providing local data transfer. The system also comprises at least one point of sale terminal or the like, which has a second transceiver for providing data transfer.
MainClaim: A system for effecting payments, wherein the system comprises: at least one mobile station comprising: an application, means for using the application, and a removable non-planar external cover module removably attached to said mobile station comprising: a main face, having an upper surface which is exposed when said removal non-planar cover is removably attached to said mobile station; a plurality of wall elements joining said main face at its edge wherein said main face and at least portions of said wall elements define a receivable cavity for receiving said mobile station; and transponder for providing for local data transfer; wherein said system for effecting payments further comprises: at least one payment reception terminal which has a second means for providing local data transfer, said second means for providing local data transfer being coupled to said first means forproviding local data transfer through a wireless interface; and wherein the application comprises means for transferring data between the first means for providing local data transfer and the second means for providing local data transfer through said wireless interface, for registering a payment transaction in the payment reception terminal.

2010/0082485	Portable point of purchase devices and methods	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	4	94%	☐

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A method of conducting a sales transaction, the method comprising:scanning identification information for an article through a handheld point of purchase device;displaying a purchase price on the handheld point of purchase device, wherein the purchase price is determined using the identification information;acquiring payment information for the purchase price through the handheld point of purchase device; andobtaining an authorization for the payment information to complete a payment for purchasing the article.

2010/0082444	Portable point of purchase user interfaces	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	4	94%	☐

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of

purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A handheld electronic device, comprising:a first input configured to scan identification information for an article;a processor configured to create a sales order based on the identification information;a graphical user interface configured to display the sales order and to facilitate user selection of a payment type from a plurality of displayed payment types available to pay for the sales order;a second input configured acquire payment information corresponding to the payment type; anda communication interface configured to transmit the payment information to a financial institution to obtain authorization for processing a payment for the sales order.

7,079,832	Electronic device cover with embedded radio frequency (RF) reader and method of using same	Nokia Mobile Phones Ltd.	Zalewski; Thomas W. | Pennington; Michael C | Roberts; Randall C. | Shaw; Steven A.	455	H04M	20041109	0	100%	☐

Abstract: A changeable cover for an electronic device and method of using same is provided. The cover has a reader for interrogating transponder tags. The cover provides information from the tag in response to the interrogation signal to the electronic device. Method for taking action based on the information provided by the tag is also disclosed.
MainClaim: A removal non-planar external cover module for a mobile device comprising: a main face, having an upper surface which is exposed when said a removal non-planar cover is removably attached to said mobile device; a plurality of wall elements joining said main face at its edge wherein said main face and at least portions of said wall elements define a receivable cavity for receiving said mobile device; an RFID reader for interrogating RFID transponder tags; and an interface with a portable radio communication device.

2010/0082485	Portable point of purchase devices and methods	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	4	94%	☐

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A method of conducting a sales transaction, the method comprising:scanning identification information for an article through a handheld point of purchase device;displaying a purchase price on the handheld point of purchase device, wherein the purchase price is determined using the identification information;acquiring payment information for the purchase price through the handheld point of purchase device; andobtaining an authorization for the payment information to complete a payment for purchasing the article.

2010/0082444	Portable point of purchase user interfaces	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	4	94%	☐

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A handheld electronic device, comprising:a first input configured to scan identification information for an article;a processor configured to create a sales order based on the identification information;a graphical user interface configured to display the sales order and to facilitate user selection of a payment type from a plurality of displayed payment types available to pay for the sales order;a second input configured acquire payment information corresponding to the payment type; anda communication interface configured to transmit the payment information to a financial institution to obtain authorization for processing a payment for the sales order.

	Electronic device cover with		Zalewski; Thomas W. | Pennington;						

6,771,981	embedded radio frequency (RF) transponder and methods of using same	Nokia Mobile Phones Ltd.	Michael C | Roberts; Randall C. | Shaw; Steven A.	455	H04B	20000929	0	100%	☐

Abstract: A changeable cover for an electronic device and method of using same in a payment system is provided. The cover has a transponder responsive to interrogation by an electric field. The cover provides an electronic identification number and other information in response to the interrogation signal. Also provided is a system for making payments, comprising at least one mobile station (4) which has an associated cover (100) for providing local data transfer. The system also comprises at least one point of sale terminal or the like, which has a second transceiver for providing data transfer.
MainClaim: A removal non-planar external cover module for a mobile device comprising:

a main face, having an upper surface which is exposed when said removal non-planar cover is removably attached to said mobile device;

a plurality of wall elements joining said main face at its edge wherein said main face and at least portions of said wall elements define a receivable cavity for receiving said mobile devices; and

transponder having data and circuitry responsive to an interrogation signal to communicate the data with a remote station via wireless communication.

2010/0082485	Portable point of purchase devices and methods	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	4	94%	☐

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A method of conducting a sales transaction, the method comprising:scanning identification information for an article through a handheld point of purchase device;displaying a purchase price on the handheld point of purchase device, wherein the purchase price is determined using the identification information;acquiring payment information for the purchase price through the handheld point of purchase device; andobtaining an authorization for the payment information to complete a payment for purchasing the article.

2010/0082444	Portable point of purchase user interfaces	Apple Inc.	Lin; Gloria | Mikhak; Amir Mahmood | Nakajima; Taido Lantz | Mayo; Sean Anthony | Rosenblatt; Michael	705	G06Q	20080930	4	94%	☐

Abstract: Systems, methods, and devices for conducting sales transactions are provided. Embodiments include handheld, portable, electronic, point of purchase devices configured to acquire identification information from articles to be purchased, to determine a purchase price, and to acquire payment information for the purchase price. The point of purchase devices may include one or more input devices such as a near field communication device, a camera, a scanner, and a biometric sensor for acquiring the identification information and/or the payment information. In some embodiments, the near field communication device may be detachable from the point of purchase device. The point of purchase devices also may contain communication interfaces, such as a near field communication interface, a local area network interface, a short message service interface, and a personal area network interface, for transmitting the information to an external server.
MainClaim: A handheld electronic device, comprising:a first input configured to scan identification information for an article;a processor configured to create a sales order based on the identification information;a graphical user interface configured to display the sales order and to facilitate user selection of a payment type from a plurality of displayed payment types available to pay for the sales order;a second input configured acquire payment information corresponding to the payment type; anda communication interface configured to transmit the payment information to a financial institution to obtain authorization for processing a payment for the sales order.

7,433,716	Communication apparatus	Nokia Corporation	Denton; James	455	H04B	20050310	0	100%	☐

Abstract: A communication apparatus is described that automatically allocates the position of participants in a group call at various positions in sound-space. The position of each user is such that the user can distinguish between each participant of the call by the position of their voice. This allows the user to visualise the location of each user, without having to manually determine the position of each user.

MainClaim: A communication apparatus operable to communicate with a plurality of devices, each device having a respective identifier, the communication apparatus comprising: a processor configured to establish automatically plural weighting factors, each weighting factor to be applied to an audio signal originating from a respective one of the plurality of devices, according to a predetermined criterion in order to provide an audible distance between said devices when said audio signals are output from at least two speakers; wherein, a first and a second of said speakers are located on said communication apparatus for providing sound of a left channel and a right channel respectively, and said weighting factors are applied to the relative amplitudes of sounds of the left channel and the right channel to simulate a direction of arrival of said audio signals from an individual one of the devices.

2010/0081487	MULTIPLE MICROPHONE SWITCHING AND CONFIGURATION	Apple Inc.	Chen; Shaohai | Li; Xingqun	455	H04M	20080930	2	92%	☐

Abstract: A mobile communications device contains at least two microphones. One microphone is designated by a selector to provide a voice dominant signal and another microphone is designated to provide a noise or echo dominant signal, for a call or a recording. The selector communicates the designations to a switch that routes the selected microphone signals to the inputs of a processor for voice signal enhancement. The selected voice dominant signal is then enhanced by suppressing ambient noise or canceling echo therein, based on the selected noise or echo dominant signal. The designation of microphones may change at any instant during the call or recording depending on various factors, e.g. based on the quality of the microphone signals. Other embodiments are also described.
MainClaim: An apparatus comprising:a communications device housing having integrated therein:an uplink channel processor to provide an uplink voice signal for a call by enhancing a voice dominant input signal using an echo or noise dominant input signal;a downlink channel processor to receive a downlink voice signal for the call;a plurality of microphones;a switch to couple (a) a microphone signal, that is selectable from each of the plurality of microphones, into a voice dominant input of the uplink channel processor, and (b) a further microphone signal, selectable from each of the plurality of microphones, into a noise and/or echo dominant input of the uplink channel processor; anda selector to dynamically control the switch during the call to change the coupling of the microphone signals.

6,259,676	Upgrading of subscriber connection	Nokia Telecommunications Oy	Kellock; Hamish | Nylund; Arne | Norri; Timo	370	H04L	19980617	0	100%	☐

Abstract: Upgrading of a subscriber connection to another requires an upgrading work done by an electrician. According to the invention, the type of connection is upgraded by remote control. A switch matrix bus including several parallel lines (1-8) is placed in the access node. Connected fixedly in advance to the bus are interface units of an ADSL connection and, when desired, of an ISDN connection, however, in such a way that only one interface is connected actively to one bus line at a time. A controlled switch element (SE1, SE2) connects a line coming from a test relay (R3) located between the end of the subscriber line (e.g. SL3) and its interface to the switch matrix bus instead of the test bus. With a remote control signal supplied through network management a choice is made of which test relay connects the connected subscriber line to the controlled switch element. Since the line or wire couple of the switch matrix bus for its part is connected fixedly to the interface of the ISDN or ADSL subscriber connection, this means that the subscriber line can be connected by way of the switch matrix bus to the ISDN or ADSL interface instead of the original analog interface, or the subscriber line may be connected to the ADSL interface instead of the original ISDN interface. In this way, any subscriber line may be upgraded to a connection of another type by remote control.
MainClaim: Subscriber connection arrangement in a telephone network node, to which several twin-wire subscriber lines lead and through which subscriber terminal equipment has access to the telephone network, the node comprising:

several subscriber interface units of an analog subscriber connection (POTS) and several subscriber interface units of a digital subscriber connection (e.g. ISDN) of a first type, to each of which the end of the subscriber line is connected and which adapt the signal coming from the subscriber line to the telephone network and correspondingly adapt the signal from the telephone network to a signal for transmission on the subscriber line,

several test switches, each of which is located between the end of the subscriber line and the subscriber interface unit,

a test unit controlling the test switch to connect the end of the subscriber line either with the subscriber interface or with the test bus, through which the test unit performs measurements concerning the subscriber line,

whereby the test switches and thus the subscriber lines are arranged in groups so that the test switches of the group may connect the subscriber lines to a common line leading to the test bus,

the node further comprising:

a switch matrix bus formed of several wire couples and to several wire couples (1, . . . , 8) of which is connected the subscriber interface (27) of a digital subscriber connection of another type, which interface performs adapting between the telephone network and a signal of another type propagating on the subscriber line, and

in each group (UNIT 1, . . . UNIT N), is a controlled switch element (SE1,SE2; SE12,SE22; . . . SE1N,SE2N) located on a common line (41, . . . 4N) between the test switches (R1, . . . ,RNn) of the group, which switch element connects the common line to one predetermined wire couple of the switch matrix bus or to the test bus.

2006/0146923	Automatic switching between DSL and analog on a single RJ-11 DSL/analog combo modem	Apple Computer, Inc.	Mardinian; Olivier	375	H04B	20060228	2	92%	☐

Abstract: A modem for providing both DSL and analog signal connection capability with a single RJ-11 jack via an automatic switching mechanism. The switching mechanism is controlled by software, which is responsive to user connection preference (i.e., for DSL or analog connection) and/or the detection that a DSL service is available. Dependent on whether DSL is detected on the signal line coupled to the jack and/or whether the user selects a DSL connection, the switching mechanism routes the signal received on the RJ-11 jack through either a path having the DSL modem circuitry or a path having analog modem circuitry.
MainClaim: A modem, comprising: a first modem circuit and a second modem circuit; an input jack for receiving a signal; a detector that detects whether a signal received at said jack is of a first type containing only analog data, or a second type containing DSL data; and a switching mechanism that selectively couples the input jack to the first modem circuit when the received signal is of said first type, and couples the input jack to the second modem circuit when the received signal is of said second type.

7,616,683	Automatic switching between DSL and analog on a single RJ-11 DSL/analog combo modem	Apple Inc.	Mardinian; Olivier	375	H04B	20060228	2	92%	☐

Abstract: A modem for providing both DSL and analog signal connection capability with a single RJ-11 jack via an automatic switching mechanism. The switching mechanism is controlled by software, which is responsive to user connection preference (i.e., for DSL or analog connection) and/or the detection that a DSL service is available. Dependent on whether DSL is detected on the signal line coupled to the jack and/or whether the user selects a DSL connection, the switching mechanism routes the signal received on the RJ-11 jack through either a path having the DSL modem circuitry or a path having analog modem circuitry.
MainClaim: A modem, comprising: a first modem circuit and a second modem circuit; an input jack for receiving a signal; a detector that detects whether a signal received at said jack is of a first type containing only analog data, or a second type containing DSL data; and a switching mechanism that selectively couples the input jack to the first modem circuit and disconnects the input jack from the second modem circuit, when the received signal is detected to be of said first type, and couples the input jack to the second modem circuit and disconnects the input jack from the first modem circuit, when the received signal is detected to be of said second type.

6,584,148	System and method for testing digital subscriber lines	Nokia Inc.	Zitting; Brent R. | Deaton; Robert D. | Rigby; Mark O. | Roberson; Ron M. | Banks; Kevin R. | Sands; Jeffrey J.	375	H04M	20000602	0	100%	☐

Abstract: A system for testing a communication path for digital subscriber line (DSL) signals includes a loop management device coupled in the communication path between a DSL access multiplexer (DSLAM) and a DSL modem located at a customer premises. The system also includes a remote test interface coupled in the communication path between the loop management device and the DSL modem. The loop management device and the remote test interface communicate using voice-band signals transmitted over the communication path and collaboratively test the communication path.
MainClaim: A system for testing a communication path for digital subscriber line (DSL) signals, comprising:

a loop management device coupled in the communication path between a DSL access multiplexer (DSLAM) and a DSL modem located at a customer premises;

a remote test interface coupled in the communication path between the loop management device and the DSL modem, comprising a first interface coupled to a first portion of the communication path, the first portion of the communication oath coupled to the DSL modem, said first portion comprises a tip wire and a ring wire;

a second interface coupled to a second portion of the communication path, the second portion of the communication oath coupled to the loop management device, wherein the remote test interface is further operable to disconnect the first portion of the communication oath from the second Portion of the communication path to perform testing of the second portion in collaboration with the loop management device, said second portion comprises a tip wire and a ring wire; wherein, the loop management device and the remote test interface are operable to communicate using voice-band signals transmitted over the communication path and the loop management device and the remote test interface are further operable to collaboratively test the communication path without the use of a trained technician by providing a locator tone in order to find the communication oath and the remote test interface is still further operable to disconnect the tip wire of the first portion from the tip wire of the second portion and disconnect the ring wire of the first portion from the ring wire of the second portion to form an open circuit for testing.

2006/0146923	Automatic switching between DSL and analog on a single RJ-11 DSL/analog combo modem	Apple Computer, Inc.	Mardinian; Olivier	375	H04B	20060228	2	92%	☐

Abstract: A modem for providing both DSL and analog signal connection capability with a single RJ-11 jack via an automatic switching mechanism. The switching mechanism is controlled by software, which is responsive to user connection preference (i.e., for DSL or analog connection) and/or the detection that a DSL service is available. Dependent on whether DSL is detected on the signal line coupled to the jack and/or whether the user selects a DSL connection, the switching mechanism routes the signal received on the RJ-11 jack through either a path having the DSL modem circuitry or a path having analog modem circuitry.
MainClaim: A modem, comprising: a first modem circuit and a second modem circuit; an input jack for receiving a signal; a detector that detects whether a signal received at said jack is of a first type containing only analog data, or a

second type containing DSL data; and a switching mechanism that selectively couples the input jack to the first modem circuit when the received signal is of said first type, and couples the input jack to the second modem circuit when the received signal is of said second type.

7,616,683	Automatic switching between DSL and analog on a single RJ-11 DSL/analog combo modem	Apple Inc.	Mardinian; Olivier	375	H04B	20060228	2	92%	☐

Abstract: A modem for providing both DSL and analog signal connection capability with a single RJ-11 jack via an automatic switching mechanism. The switching mechanism is controlled by software, which is responsive to user connection preference (i.e., for DSL or analog connection) and/or the detection that a DSL service is available. Dependent on whether DSL is detected on the signal line coupled to the jack and/or whether the user selects a DSL connection, the switching mechanism routes the signal received on the RJ-11 jack through either a path having the DSL modem circuitry or a path having analog modem circuitry.

MainClaim: A modem, comprising: a first modem circuit and a second modem circuit; an input jack for receiving a signal; a detector that detects whether a signal received at said jack is of a first type containing only analog data, or a second type containing DSL data; and a switching mechanism that selectively couples the input jack to the first modem circuit and disconnects the input jack from the second modem circuit, when the received signal is detected to be of said first type, and couples the input jack to the second modem circuit and disconnects the input jack from the first modem circuit, when the received signal is detected to be of said second type.

7,006,559	Automatic switching between DSL and analog on a single RJ-11 DSL/analog combo modem	Apple Computer, Inc.	Mardinian; Olivier	375	H04B	20010226	1	92%	☐

Abstract: Standard analog modems (modulator-demodulator devices) are currently commonplace in the home and office environments, where they are used to enable electronic devices, such as personal computers, to transmit data over existing telephone lines (made of small gauge copper wire) to other electronic devices. Data is stored digitally in such devices, but is converted by an analog modem to be transmitted over the lines in analog form. A data stream is established between a sender (i.e., originating electronic device) and a receiver (i.e., receiving electronic device) by using the resources of an entire telecommunications system. In other words, data is transmitted from the sender's local loop, through the telephone switching system, and to the receiver's local loop. Because the lines used by analog modems to transmit data only use a frequency range of about 0-3400 Hz, a data transmittance limit of about 56,000 bits-per-second (bps) exists for communication through the lines. An analog modem operating at this high end may, for example, be a modem operating under the ITU V.90 standard.

MainClaim: A modem providing signal connection capability of a first type and of a second type, the modem comprising:

a first modem circuitry and a second modem circuitry;

an input jack for receiving a signal;

a detector for detecting whether the received signal is of a first or second type; and

a switching mechanism, wherein the switching mechanism selectively couples the input jack to the first or second modem circuitry based on the detected signal type, and wherein the switching mechanism selectively couples the input jack to the first or second modem circuitry in response to commands from the user to override a previous modem circuitry selection.