Siemens Digital and Radio Communications Portfolio

Patents for Sale

January 7, 2015

Offer #14-SAG001-000057

About TAEUS Corporation

For nearly twenty years, TAEUS Corporation has helped market leaders around the world maximize the value of their intellectual property through comprehensive intellectual property business cycle solutions. Major organizations have turned to TAEUS to help them maximize shareholder value in mergers, acquisitions, and other corporate transactions, as well as gain a competitive advantage in the marketplace through strategic application of their unique intellectual property

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Executive Summary

TAEUS Corporation (TAEUS) and Siemens Aktiengesellschaft (Siemens) present a unique opportunity for your company to enhance its position in the Digital Communications Space. The portfolio includes techniques for automatically selecting media content based on user preferences, a means for looking through various scenes in a video for scene selection purposes, a hierarchical structure from raw video for the purpose of organizing and manipulating video data, viewing portions of a video that resides on a server before the bulk of that video is sent to the client, a method to choose clips from video used to navigate and a method of outputting web based information with audio.

This portfolio is comprised of 10 United States patents and approximately 35 associated family members. The patents within this portfolio have issued dates ranging from2000 to 2014.

Market participants in the Digital and Radio Communications space will enjoy the additional design opportunities, freedom of action, and barriers against competitors afforded by owning this portfolio, or will be able to licence the rights from the portfolio.

You are encouraged to indicate interest *as soon as possible* so that we can keep you advised of changes to the intended closing date or any other updates. Thank you for your interest and we look forward to hearing from you soon.

For additional information on this offer, please contact:

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Advantages of this Communications Portfolio:
▸ Patents describe a file delivery mechanism for file download over a broadcast channel.
▸ The technology provides a means for looking through various scenes in a video for scene selection purposes
▸ Patents describe a technology useful for viewing portions of a video that resides on a server (for navigation purposes) before the bulk of that video is sent to the client

The patents in this portfolio cover:
▸ Image retrieval system for client/server environment
▸ Non-keyword based WWW search system Information exchange with users
▸ Method for automatically selecting internet data streams
▸ A method allowing a user to rapidly view a video sequence in order to find a particular desired point
▸ Transmitting data via a communication link where the data is divided into a plurality of data packets
▸ Method used to manage data in a stored video stream

Contents

1. Digital and Radio Communications Portfolio Overview

The popularity of sharing video content is reaching an all-time high and long-form copy is rapidly giving way to the 30-second script. With massive studies done by the likes of Wistia, YouTube, and Ooyala on video engagement, and with video projected to take up over 90 percent of the online content pie within the next decade, it's hardly surprising that businesses are scrambling to keep up with the expectations set by YouTube celebrities and Viners[1].

Video content is projected to make up over 90 percent of the on-line content within the next decade and business are scrambling to keep up with the demand and expectations that have been set by YouTube and Vine. A good way to assess the pervasiveness of online video content is to look at its projected growth. According to a comprehensive 2011 white paper by YuMe, 48 percent of online viewers expected to watch more online video and less TV in 2012. [2]

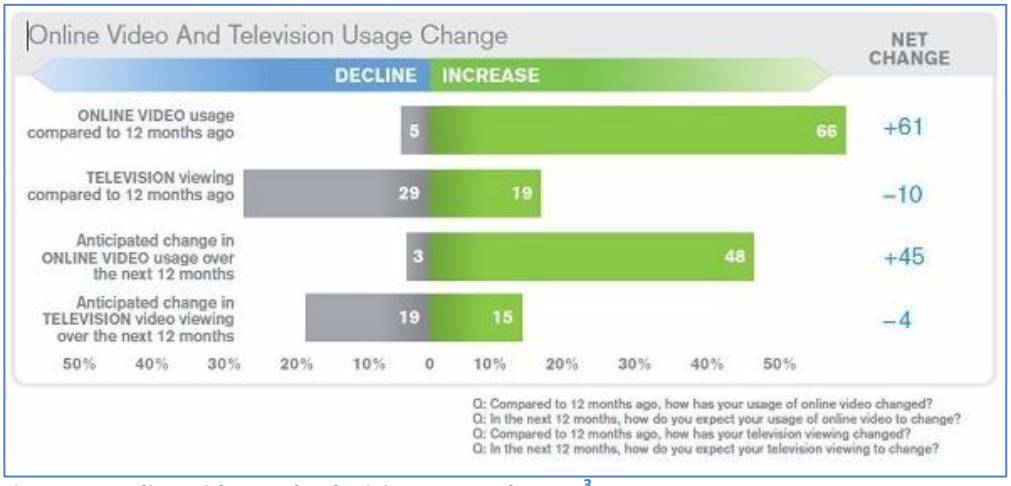


Figure 2. Online Video and Television usage Change [3]

- Adobe
- Apple
- Broadcom
- Ericsson
- Facebook
- Google
- HTC
- Huawei
- LG
- Microsoft

Figure 1. Companies Patenting in the Same Technology Area

According to Figure 2 the projections and demand for online video content are growing. eMarkeret also completed a study in 2010 that showed the anticipated growth for 2008 to 2014[4] (see Figure 3). The study showed a 77% growth over the six years studied.

[1] http://contentmarketinginstitute.com/2013/10/thriving-video-content-scene-types-brand-videos/
[2] http://contentmarketinginstitute.com/2013/10/thriving-video-content-scene-types-brand-videos/
[3] http://i0.wp.com/www.reelseo.com/wp-content/uploads/2011/02/yume-online-video-usage.jpg
[4] http://i0.wp.com/www.charmcityvirtualtours.com/wp-content/uploads/2012/11/Video-Use.jpg

These studies demonstrate that the activity around video content is growing and will continue to grow and that to compete effectively companies need to keep up, making it easy for the user to view and manipulate the content. Siemens has developed several key technologies that aid the user in selecting and viewing online video content. One of the patents teaches a method for looking through various scenes in a video for a specific scene. Another similar patent allows the user to see small portions of a video before committing to download the entire video.

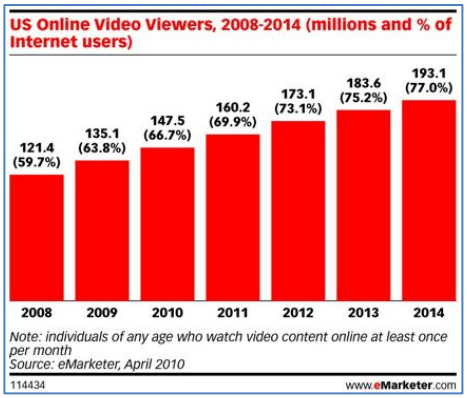


Figure 3.

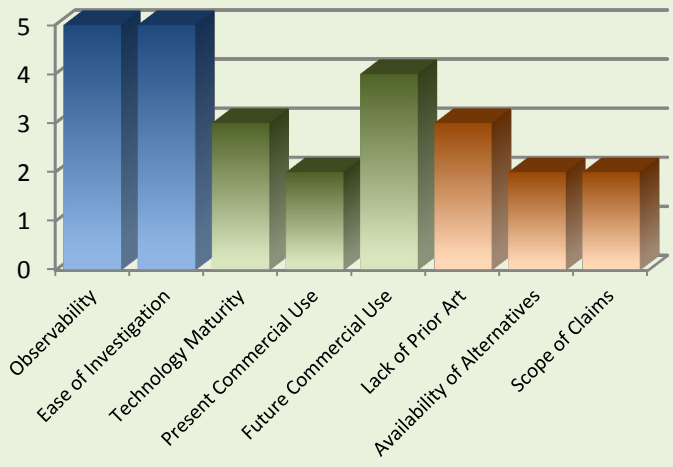
Siemens was also active in developing technology where webpages or screen content is read to the user thus assisting the blind in interacting with the World Wide Web. In the future, these ideas may be implemented in more intelligent information retrieval systems for mobile devices and vehicles. For example, a system like Apple's Siri may be able to render full web pages using audio so that the user does not need look at the screen.

Early priority dates, a reputable Seller, and current technology use should make this offer attractive to any party involved in mobile communications.

To predict the patent's potential licensing strength from a technical perspective, TAEUS reviewed and evaluated US 6,018,710, US 8,265,088 and US 7,899,086 following the consistent set of TAEUSworks rules. Evidence of Use (EoU) reports are provided for US 8,265,088 and US 7,899,086 and are shown to apply to the 3GPP TS 23.172 V6.4.0 standard.

US 6,018,710

TAEUSWorks Average Score: **3.25** out of 5

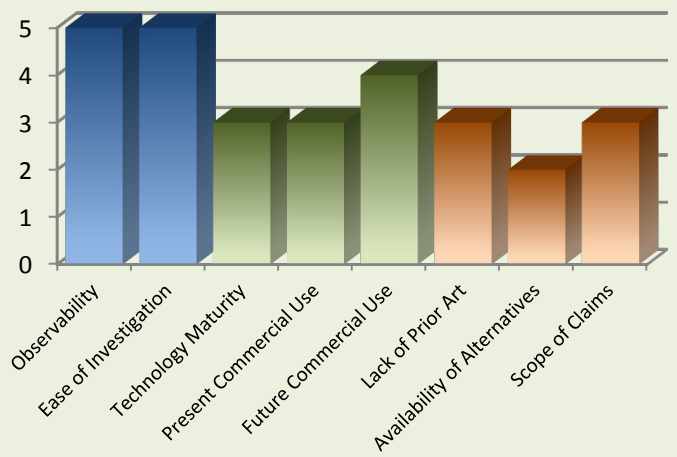


TAEUSworks scores are recognized in the intellectual property industry as indicators of a patent's licensing strength This assessment yields an overall 1-5 score.

TAEUSworks provides information on a set of qualitative parameters critical to patent licensing and litigation. The evaluation factors (detailed in Appendix A) include:

Patent Enforceability Factors	Observability
	Ease of Investigation
Market Impact Factors	Technology Maturity
	Present Commercial Use
	Future Commercial Use
Patent Coverage Factors	Lack of Prior Art
	Availability of Alternatives
	Scope of Claims

US 8,265,088		
TAEUSWorks Average Score:	3.50	out of 5

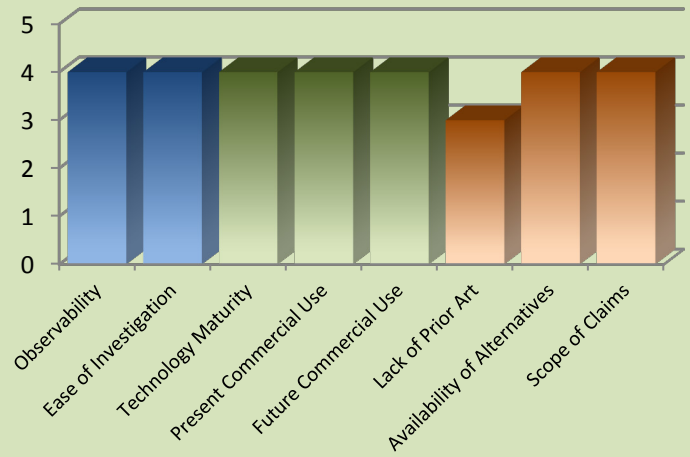


TAEUSworks scores are recognized in the intellectual property industry as indicators of a patent's licensing strength This assessment yields an overall 1-5 score.

TAEUSworks provides information on a set of qualitative parameters critical to patent licensing and litigation. The evaluation factors (detailed in Appendix A) include:

Patent Enforceability Factors	Observability
	Ease of Investigation
Market Impact Factors	Technology Maturity
	Present Commercial Use
	Future Commercial Use
Patent Coverage Factors	Lack of Prior Art
	Availability of Alternatives
	Scope of Claims

US 7,899,086		
TAEUSWorks Average Score:	3.88	out of 5



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Patent Coverage Factors	Lack of Prior Art
	Availability of Alternatives
	Scope of Claims

1.1. Portfolio Analysis Matrix

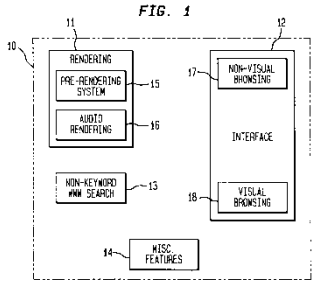
The Analysis Matrix provides a summary of four essential licensing criteria for each patent in this portfolio. These criteria -- Observability, Ease of Investigation, Scope of Claims, and Commercial Use -- are each assessed on a 1 – 5 scale. The matrix offers a synopsis of the portfolio's relative strengths, as well as a list of keywords relevant to each patent.

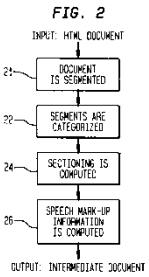
Green highlight indicates presence of TAEUSworks Evaluation and Evidence of Use

Patent No.	Title	Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
US 6,018,710	Web-based interactive radio environment: WIRE	5	5	4	3	non-visual browsing, audio rendering
US 6,278,446	System for interactive organization and browsing of video	3	2	2	2	video editing, video organization, video sequence
US 6,546,421	System and method for automatic selection of internet data streams	4	2	2	2	audio streaming, video streaming, user preferences
US 7,369,517	Method for downloading data in a radio communications system	3	3	4	3	MBMS, eMBMS, Multimedia Broadcast and Multicast Services, broadcast file
US 7,831,683	Storage and access method for an image retrieval system in a client/server environment	4	3	2	4	video streaming, video player, scene selection, scene navigation
US 8,543,080	Method of downloading data in a radio communications system	2	2	2	2	MBMS, eMBMS, Multimedia Broadcast and Multicast Services, broadcast file
US 7,899,086	Method for signaling of a change from a first service to a second service during a call by modifying the utilized codec	4	4	4	4	Communication network, MuMe dummy codec, change in service (video, text image)
US 8,811,162	Network element for allocating at least one payload data connection to at least one multiplex	3	3	3	4	Data\Voice multiplex communication within a network
US 8,089,867	Method for allocating at least one user data link to at least one multiplex connection	3	3	3	4	Data\Voice multiplex communication within a network
US 8,265,088	Method and apparatus for a fast installation of an ip user connection over a 3gpp nb interface under application of the bicc â€œdelayed backward bearer establishment and avoidance of failure	4	3	3	4	Delayed Backward Bearer Establishment, 3GPP Nb Interface

1.2. US 6,018,710

Title	Web-based interactive radio environment: WIRE





Priority Date	1996-12-13	**Filed Date**	1996-12-13
Publication Date	2000-01-25	**Expiration Date**	2016-12-13
Inventors	Wynblatt, Michael J; Hsu, Arding; Benson, Daniel C		
Current Assignee	Siemens Corporation	**Location**	US
PTO Length	3.12 years	**Claims**	22
Backward Citations	8	**Forward Citations**	156
Family Members	3	**Litigation**	Yes
Active Family No:	EP0848373B1|DE69735526D1|DE69735526T2		
Abstract	A system for providing a primarily audio environment for world wide web access includes a system for rendering structured documents using audio an interface for information exchange to users a non-keyword based WWW search system and a few miscellaneous features. The system for rendering structured documents using audio includes a pre-rendering system which converts a HTML document into an intermediate document and a rendering system which actually generates an audio output. The interface includes a non-visual browsing system and an interface to users for visual browsing environments.		

1.2.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
5	5	4	3	non-visual browsing, audio rendering

1.2.2. Claims Analysis

Independent Claims:	6
Dependent Claims:	16
Total Claims:	22
Shortest Independent Claim:	#1 (59 words)
Longest Independent Claim:	#11 (248 words)

1.2.3. Classification Analysis

IP Classifications: 3
G06F 03/160: Sound input, Sound output
G10L 13/020: Methods for producing synthetic speech, Speech synthesisers
H04M 03/493: Interactive information services, e.g. directory enquiries

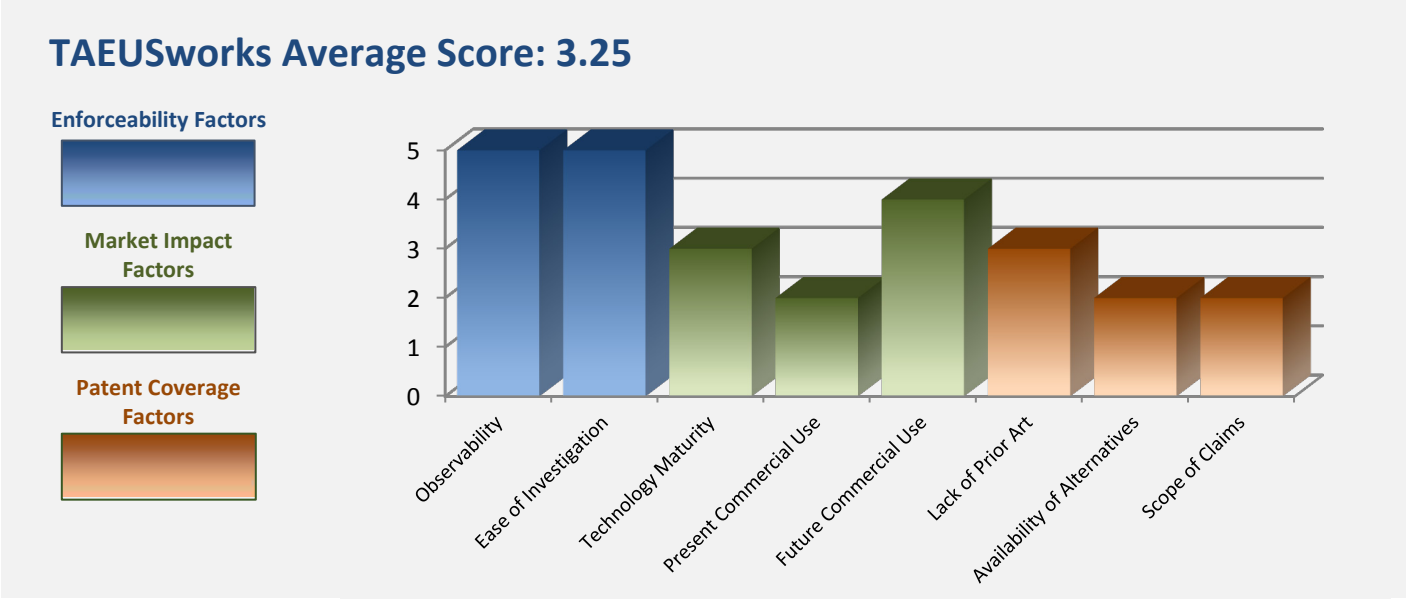
US Classifications: 1
704/260.0: Image to speech

1.2.4. Citation Analysis

Backward Citations: 8 (Hewlett-packard Company: 2, Avaya Inc: 1, Acacia Research Corporation: 1, Massachusetts Institute Of Technology: 1, Reliant Data Systems: 1, Societe D'information, D'animation Et De Diffusion: 1, Xybernaut Corp: 1)

Forward Citations: 219 (Microstrategy Incorporated: 36, Parus Holdings, Inc., Illinois: 16, Open Text Corporation : 11, Prime Research Alliance E.: 10, Intellectual Ventures Management, Llc: 9, Nuance Communications Inc.: 9, Benjamin * Slotznick: 8, Open Invention Network, Llc.: 6, Intel Corporation: 6, Kirusa Inc.: 6, Others: 102)

1.2.5. US 6,018,710 TAEUSworks Evaluation



1.2.5.1. Factors Relating to Patent Enforceability

Factor	Score (1-5)	Comments
Observability	5	All of the elements of Claim 1 are easily observed with the system in hand; little to no investigation or document searching is necessary. The other independent claims (11, 12, 20, 21, and 22) may require a small amount of documentation searching.
Ease of Investigation	5	Standard usage is all that is required for investigation.

1.2.5.2. Factors Relating to Market Impact

Factor	Score (1-5)	Comments
Technology Maturity	3	Certain elements of the technology are already pervasive. Nearly all computers and mobile devices have accessibility features for reading content within web pages. This technology is only getting better. Non-keyword searching, however, is not pervasive and has not yet been implemented by many companies.
Present Commercial Use	2	The visually impaired use computers and mobile devices today. Nearly all operating systems for computers and mobile devices have features for audibly describing what is on the screen of the device. Most of these devices also have web browsing capabilities that describe the content of a web page. Very few devices, have a non-keyword searching ability.
Future Commercial Use	4	Accessibility features for the visually impaired will become better over time. Organizations have been started (such as http://www.w3.org/WAI/mobile/) that are committed to ensuring that future technologies will be available to those with disabilities. But, it is unclear just how useful non-keyword searches will be to these technologies.

1.2.5.3. Factors Relating to the Patent Coverage

Factor	Score (1-5)	Comments
Lack of Prior Art	3	Companies such as Canon and Hewlett-Packard published technologies for reading text from web browsers in the early 90s. The inventive portion of this patent does appear to be that it uses non-keyword based searching.
Availability of Alternatives	2	The alternative to this technology is to use keyword based searching, which seems to be the primary way to do searching in devices that currently exist. It is unclear how important non-keyword searching will be in the future.
Scope of Claims	2	The claims are limited by the fact that the technology requires non-keyword based searching.

1.2.5.4. Summary and Comments

The technology disclosed in the US 6,018,710 patent is useful for interacting with the internet without a visual display. A user can search through the internet using an input device (such as a keyboard) and the results of the search are audibly spoken back to the user through an output device (such as a headset, or speaker). The technology is useful for the visually impaired: a person with limited or no eye sight can use the technology to surf the internet where he/she otherwise could not do so using a standard visual display. Another use for the technology is for those in need of information from the internet, but who are visually occupied with something else: a person driving, for example, can access a web page from the internet without taking their eyes off of the road. Technologies such as the one disclosed in the US 6,018,710 patent will become even more important in the future and certain aspects of it are already pervasively used in personal computers and mobile devices.

The primary limitation of the patent is that web searching must be done without keywords. Keyword based searching are the prevalent method for most current systems. Future technology, however, may benefit from non-keyword based search. The non-keyword claim element could, for example, be interpreted as a bookmarking system; this would make searching for favorite web sites very fast and simple.

1.2.5.5. Companies in the Same Technology Field as US 6,018,710

Company	URL
Apple	https://www.apple.com/accessibility/osx/voiceover/
Blackberry	http://us.blackberry.com/legal/accessibility.html
Google	https://www.google.com/accessibility/
Microsoft	http://windows.microsoft.com/en-us/windows/hear-text-read-aloud-narrator#1TC=windows-8

1.2.6. US 6,018,710 Evidence of Use Report

US 6,018,710 Claim 1 Limitations	Samsung ATIV Book 9 Plus Evidence of Use
1. A non-visual browsing environment for the world-wide web comprising:	The Samsung ATIV Book 9 Plus system as shipped provides a non-visual browsing environment for the world-wide web comprising the following elements:

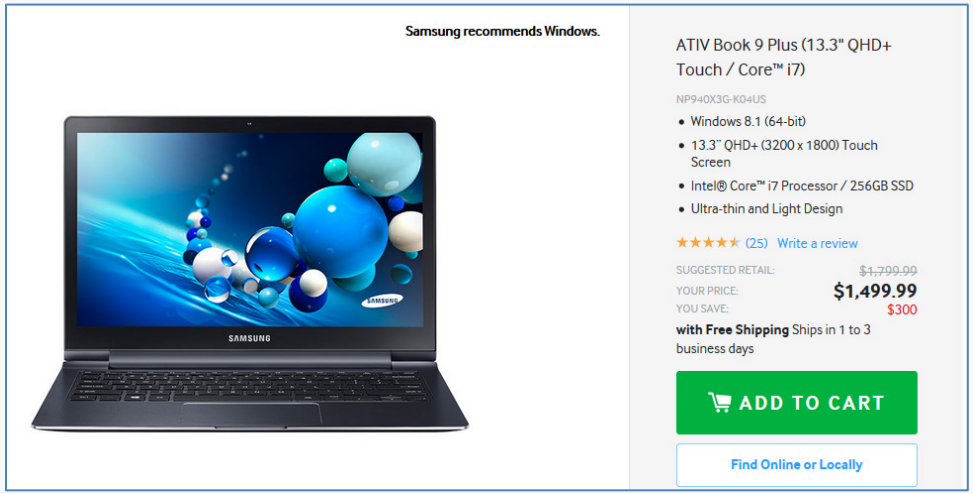
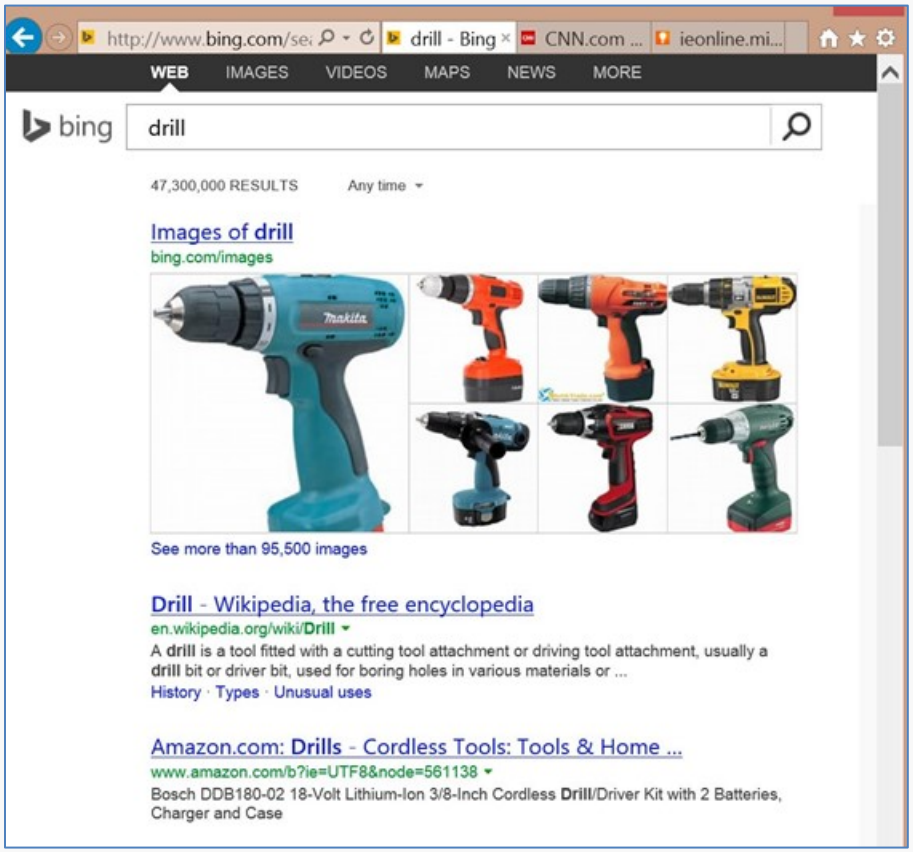
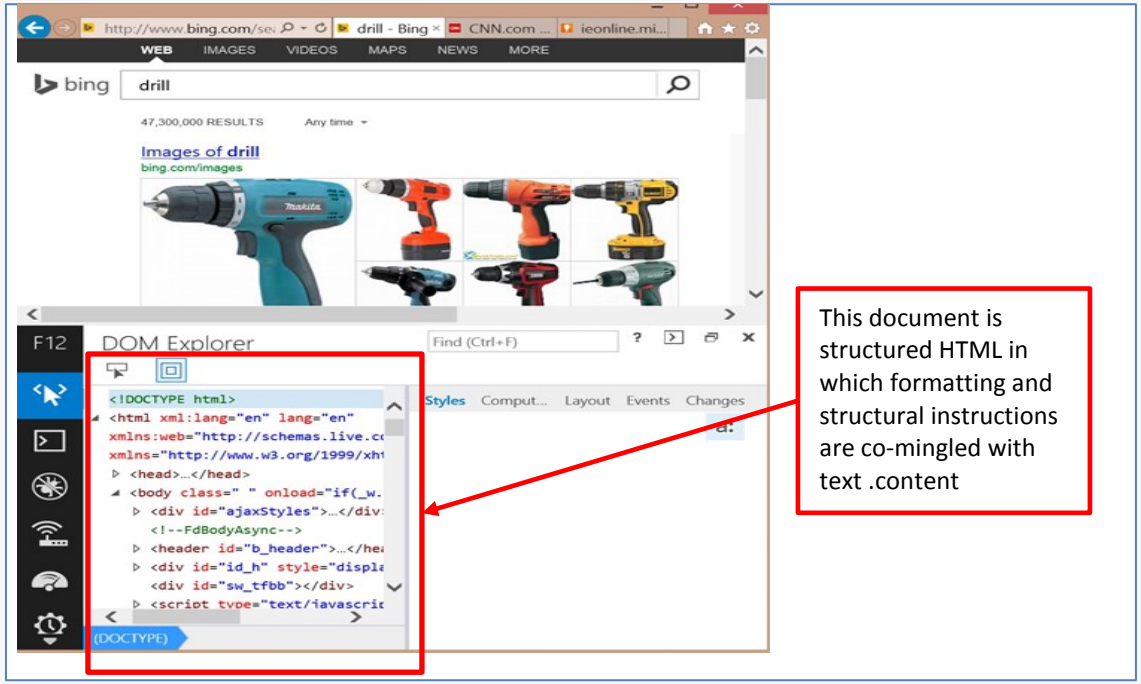


Figure 1. ATIV Book 9 Plus[5][6]

[5] http://www.samsung.com/us/computer/pcs/NP940X3G-K04US
[6] http://downloadcenter.samsung.com/content/UM/201406/20140627093943171/Win8_Manual_ENG.pdf

US 6,018,710 Claim 1 Limitations	Samsung ATIV Book 9 Plus Evidence of Use
a system for rendering structured documents on the world-wide web using audio,	The Samsung ATIV Book 9 Plus ships with specific recommended software, including Windows 8.1, Internet Explorer 11 and Microsoft Narrator. This combination of hardware and software creates a system for rendering structured documents on the world-wide web using audio. This is evidenced as follows:  **Figure 2. Bing search for the word "drill" (screen capture from computer).** This this is a structured html document because one can press the function key F12 button to show the Document Object Mode (DOM) in Internet Explorer[7]. After pressing F12, a window at the bottom of the browser pops up, (shown in Figure 3).

[7] The F12 developer tools are part of a browser, (http://msdn.microsoft.com/en-us/library/ie/ gg589512(v=vs.85).aspx

US 6,018,710 Claim 1 Limitations	Samsung ATIV Book 9 Plus Evidence of Use
the structured documents comprising documents in which formatting and structural instructions are co-mingled with text content;	Virtually all web pages on the world-wide web are structured documents in which formatting and structural instructions are co-mingled with text content. When using the Samsung ATIV Book 9 Plus system, the user may navigate through the Internet using only the keyboard and built in speakers of the ATIV Book 9 Plus. The resulting pages are rendered completely in audio. To demonstrate this system, a Bing search was conducted for the word "drill". The word can be typed or speech recognition can be used to enter this word into the browser[8]. While this is a "keyword" search, further browsing can be conducted without entering keywords, as is demonstrated below.  Figure 3. The F12 tool showing that the page is a structured html document (screen capture from computer). HTML contains elements used for formatting, structural instructions and text content[9][10].

[8] http://windows.microsoft.com/en-us/windows-8/using-speech-recognition
[9] http://www.w3.org/TR/html4/about.html
[10] http://www.w3.org/TR/html4/types.html

US 6,018,710 Claim 1 Limitations	Samsung ATIV Book 9 Plus Evidence of Use
an interface for information exchange to users; and,	The Samsung ATIV Book 9 Plus system provides an interface for information exchange to users. This is evidenced as follows: The ATIV Book 9 Plus with Windows 8.1 has a keyboard and microphone for input (see Figures 4 and 5), and speakers for output.[11]

Figure 4. ATIV Book 9 Plus keyboard

Number/Name	Description
4 Power button	• Press to turn the computer on.
5 Touchpad	• Move the cursor and click options. • Works actions as those of a mouse.
6 Keyboard	• Press keys to enter data.
7 Microphone	• Use the built-in microphone.
8 Camera indicator light	• Indicates the camera status.

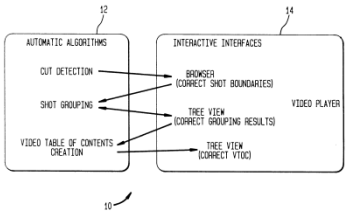
Figure 5. ATIV Book 9 Plus keyboard

[11] http://downloadcenter.samsung.com/content/UM/201406/20140627093943171/Win8_Manual_ENG.pdf

US 6,018,710 Claim 1 Limitations	Samsung ATIV Book 9 Plus Evidence of Use
a non-keyword based world-wide web search system.	The Samsung ATIV Book 9 Plus system provides a non-keyword based world-wide web search system. To demonstrate this, the following procedure may be used. From the keyboard of the ATIV Book 9 Pro a new tab in the browser can be opened by pressing Ctrl+T on the keyboard. By pressing the tab key a few times, the speaker will say “discover other sites you might like.” By pressing Enter the user is brought to a new web page; the user then presses Capslock+Right Arrow and the speaker says “discover more of the web.” By pressing Capslock+Right Arrow again the speaker says “find websites to like based on sites that you’ve visited.” By pressing Capslock +Right Arrow several more times we hear a list of web sites that we might be interested in. For example, after pressing Capslock+Right Arrow several times, we heard the speaker say “dex white pages”; this indicated that we had the link selected, therefore we pressed Enter to go to the Dex White Pages website. Therefore, it is possible to search the world-wide web using the Samsung ATIV Book 9 Plus system without needing to use a keyword based search or visual interaction with the system.

1.3. US 6,278,446

Title	System for interactive organization and browsing of video



Priority Date	1998-02-23	**Filed Date**	1998-02-23
Publication Date	2001-08-21	**Expiration Date**	2018-02-23
Inventors	Liou, Shih-ping; Das, Madirakshi		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	3.49 years	**Claims**	21
Backward Citations	2	**Forward Citations**	81
Family Members	0	**Litigation**	No
Active Family No:	None		
Abstract	A system for interactively organizing and browsing video automatically processes video creating a video table of contents (VTOC) while providing easy-to-use interfaces for verification correction and augmentation of the automatically extracted video structure. Shot detection shot grouping and VTOC generation are automatically determined without making restrictive assumptions about the structure or content of the video. A nonstationary time series model of difference metrics is used for shot boundary detention. Color and edge similarities are used for shot grouping. Observation about the structure of a wide class of videos are used for the generating the table of contents. The use of automatic processing in conjuction with input from the user provides a meaningful video organization.		

1.3.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
3	2	2	2	video editing, video organization, video sequence

1.3.2. Claims Analysis

Independent Claims:	3
Dependent Claims:	18
Total Claims:	21
Shortest Independent Claim:	#7 (120 words)
Longest Independent Claim:	#18 (371 words)

1.3.3. Classification Analysis

IP Classifications: 1
G06F 17/300: Information retrieval, Database structures therefor

US Classifications: 1
715/700.0: OPERATOR INTERFACE (E.G., GRAPHICAL USER INTERFACE)

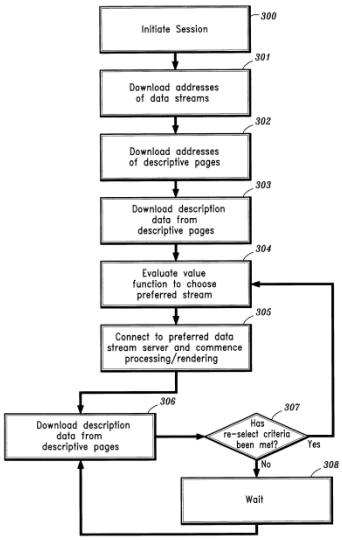
1.3.4. Citation Analysis

Backward Citations: 2 (Princeton University: 1, Virage Inc: 1)

Forward Citations: 90 (Digimarc Corporation: 7, Sony Corporation: 5, Lg Electronics Inc.: 4, Vmark, Inc., California: 4, Hewlett-packard Company: 4, Technicolor S.a.: 4, Kaleidescape Inc: 4, Rieko Corp.: 3, Toshiba Corporation: 3, Sasken Communications Technologies Limited: 3, Others: 49)

1.4. US 6,546,421

Title	System and method for automatic selection of internet data streams



Priority Date	1999-06-30	**Filed Date**	1999-06-30
Publication Date	2003-04-08	**Expiration Date**	2019-06-30
Inventors	Wynblatt, Michael; Baxter, Brent		
Current Assignee	Siemens Corporation	**Location**	US
PTO Length	3.78 years	**Claims**	18
Backward Citations	22	**Forward Citations**	38
Family Members	0	**Litigation**	No
Active Family No:	None		

Abstract

A system and method for providing automatic and continuous selection of user-preferred data streams based on predefined parameters. In one aspect of the present invention a client/server system comprises: a sever comprising an address list including addresses of a plurality of data sources; and a client comprising a list of user preferences; means for accessing the server to obtain the address list; means for accessing at least a first data source of the plurality of data sources on the address list to obtain descriptive information; evaluation means for evaluating the descriptive information and the user preferences to select at least a second data source of the plurality of data sources based on the evaluation; and means for accessing the second data source. In one exemplary embodiment of the present invention as applied to Internet radio stations a user would be allowed to listen only to songs from his list of favorites. In another exemplary embodiment as applied to Internet sporting events a user can hear the most exciting parts of one or more current sporting events. In another exemplary embodiment as applied to industrial process monitoring a remote user could ensure that he would always see any data stream that had anomalous readings.

1.4.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
4	2	2	2	audio streaming, video streaming, user preferences

1.4.2. Claims Analysis

Independent Claims:	3
Dependent Claims:	15
Total Claims:	18
Shortest Independent Claim:	#1 (139 words)
Longest Independent Claim:	#17 (172 words)

1.4.3. Classification Analysis

IP Classifications: 1
G06F 17/300: Information retrieval, Database structures therefor

US Classifications: 1
709/225.0: Computer network access regulating

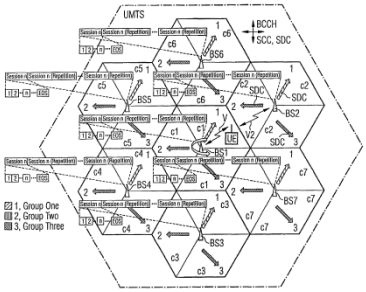
1.4.4. Citation Analysis

Backward Citations: 22 (Intellectual Ventures Management, Llc: 5, International Business Machines Corp.: 4, Microsoft Corporation: 3, Personal Audio, Llc: 3, Charles Greenfeld: 1, Unassigned: 1, Dialogic Corp: 1, Facebook, Inc.: 1, Hewlett-packard Company: 1, Intel Corporation: 1, Others: 1)

Forward Citations: 54 (Apple Inc.: 13, Goldman Sachs Group, Inc.: 9, Sony Corporation: 7, Yahoo! Inc.: 5, Intellectual Ventures Management, Llc: 2, Akamai Technologies, Inc.: 2, Pandora Media, Inc.: 2, Centurylink, Inc: 2, Avago Technologies Limited: 2, Hewlett-packard Company: 1, Others: 9)

1.5. US 7,369,517

Title	Method for downloading data in a radio communications system



Priority Date	2002-02-07	**Filed Date**	2004-08-09
Publication Date	2008-05-06	**Expiration Date**	2024-05-17
Inventors	Dillinger, Markus; Luo, Jijun; Mohyeldin, Eiman Bushra		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	3.74 years	**Claims**	13
Backward Citations	16	**Forward Citations**	14
Family Members	3	**Litigation**	No
Active Family No:	DE60304830D1 | EP1472602B1|CN1628286B |US8543080B3		
Abstract	According to one aspect of the invention in a radio communications system comprising at least one base station (BS 1 BS 2) provided with means for transmitting data via a communication link (BCCH; V) wherein the data is divided into a plurality of data packets and being transmitted via the communication link to at least one receiving station (UE). To reduce power consumption it is proposed that the downloading of the data packets is halted if it is determined that a data packet has not been received or a corrupted data packet has been received by the receiving station the missing or corrupted data packet is retransmitted via the same or a different communication link at a later time.		

1.5.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
3	3	4	3	MBMS, eMBMS, Multimedia Broadcast and Multicast Services, broadcast file download, multimedia broadcast

1.5.2. Claims Analysis

Independent Claims:	2
Dependent Claims:	11
Total Claims:	13
Shortest Independent Claim:	#1 (117 words)
Longest Independent Claim:	#13 (185 words)

1.5.3. Classification Analysis

IP Classifications: 6

H04B 07/216: Code-division or spread-spectrum multiple access
G06F 11/140: Error detection or correction of the data by redundancy in operation, e.g. by using different operation sequences leading to the same result
H04L 29/060: characterised by a protocol
H04L 29/080: Transmission control procedure, e.g. data link level control procedure
H04W 04/060: Selective distribution of broadcast, Services to user groups, One-way selective calling services
H04W 76/040: Connection manipulation

US Classifications: 1

370/310.0: COMMUNICATION OVER FREE SPACE

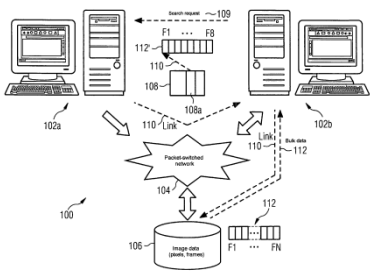
1.5.4. Citation Analysis

Backward Citations: 16 (Telefonaktiebolaget Lm Ericsson: 3, Samsung Group: 2, Nortel Networks Corporation : 1, Panasonic Corporation: 1, Advantech Satellite Networks Inc: 1, Unassigned: 1, Automotive Systems Laboratory, Inc.: 1, Ciena Corporation: 1, Apple Inc.: 1, Google Inc.: 1, Others: 3)

Forward Citations: 13 (Qualcomm, Inc.: 6, Siemens Ag: 2, Kyocera Corporation: 2, Koninklijke Philips Nv: 1, Apple Inc.: 1, Johns Hopkins University: 1)

1.6. US 7,831,683

Title	Storage and access method for an image retrieval system in a client/server environment



Priority Date	2003-10-31	**Filed Date**	2004-10-29
Publication Date	2010-11-09	**Expiration Date**	2027-12-10
Inventors	Becker, Detlef; Dorn, Karlheinz; Pusztai, Artur		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	6.03 years	**Claims**	18
Backward Citations	14	**Forward Citations**	4
Family Members	2	**Litigation**	No
Active Family No:	CN1612568A|DE10351317B4		
Abstract	An image retrieval system has a network server at least one client terminal and a data archive of a multiuser file management system spatially separated from server and client of a file server. A reduced data stream is now transmitted between server and client and includes a header for transmitting address and meta information with an additional data field that includes an access key to the bulk data stored in the external data archive. This reduces the data volume to be transmitted during image retrieval and thus reduces the network utilization in the transmission of the data stream occurring between server and client. As a result of this the time period required to transfer the modified data stream between server and client terminal is correspondingly short.		

1.6.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
4	3	2	4	video streaming, video player, scene selection, scene navigation

1.6.2. Claims Analysis

Independent Claims:	3
Dependent Claims:	15
Total Claims:	18
Shortest Independent Claim:	#6 (201 words)
Longest Independent Claim:	#1 (242 words)

1.6.3. Classification Analysis

IP Classifications: 4
G06F 15/160: Combinations of two or more digital computers each having at least an arithmetic unit, a programme unit and a register, e.g. for a simultaneous processing of several programmes
G06F 17/300: Information retrieval, Database structures therefor
H04L 09/000: Arrangements for secret or secure communication
H04L 29/060: characterised by a protocol

US Classifications: 1
709/217.0: REMOTE DATA ACCESSING

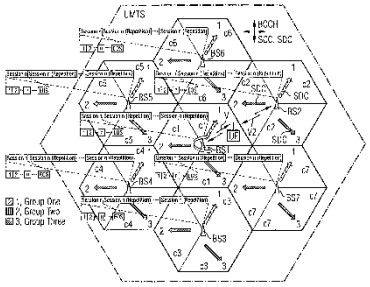
1.6.4. Citation Analysis

Backward Citations: 14 (Acuo Technologies, Llc, Minnesota: 1, Draegerwerk Ag & Co. Kgaa: 1, Amicas, Inc.: 1, Unassigned: 1, Mori Seiki Co., Ltd.: 1, Toshiba Corporation: 1, At&t Inc.: 1, Twitter, Inc.: 1, Dell Inc.: 1, Hewlett-packard Company: 1, Others: 4)

Forward Citations: 4 (Oracle Corporation: 2, General Electric Company: 1, Inofile Llc: 1)

1.7. US 8,543,080

Title	Method of downloading data in a radio communications system



Priority Date	2002-02-07	**Filed Date**	2008-03-24
Publication Date	2013-09-24	**Expiration Date**	2024-10-24
Inventors	Dillinger, Markus; Luo, Jijun; Mohyeldin, Eiman Bushra		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	5.51 years	**Claims**	15
Backward Citations	31	**Forward Citations**	0
Family Members	5	**Litigation**	No
Active Family No:	DE60304830D1|US7369517B2|DE60304830T2|EP1472602B1|CN1628286B		
Abstract	According to one aspect of the invention in a radio communications system comprising at least one base station (BS1 BS2) provided with means for transmitting data via a communication link (BCCH; V) wherein the data is divided into a plurality of data packets and being transmitted via the communication link to at least one receiving station (UE). To reduce power consumption it is proposed that the downloading of the data packets is halted if it is determined that a data packet has not been received or a corrupted data packet has been received by the receiving station the missing or corrupted data packet is retransmitted via the same or a different communication link at a later time.		

1.7.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
2	2	2	2	MBMS, eMBMS, Multimedia Broadcast and Multicast Services, broadcast file download, multimedia broadcast

1.7.2. Claims Analysis

Independent Claims:	1
Dependent Claims:	14
Total Claims:	15
Shortest Independent Claim:	#1 (150 words)
Longest Independent Claim:	None

1.7.3. Classification Analysis

IP Classifications: 8
H04M 01/725: Cordless telephones
G06F 11/140: Error detection or correction of the data by redundancy in operation, e.g. by using different operation sequences leading to the same result
H04L 29/060: characterised by a protocol
H04L 29/080: Transmission control procedure, e.g. data link level control procedure
H04M 03/420: Systems providing special services or facilities to subscribers
H04W 04/060: Selective distribution of broadcast, Services to user groups, One-way selective calling services
H04W 36/000: Handoff or reselecting arrangements
H04W 76/040: Connection manipulation

US Classifications: 1
455/403.0: RADIOTELEPHONE SYSTEM

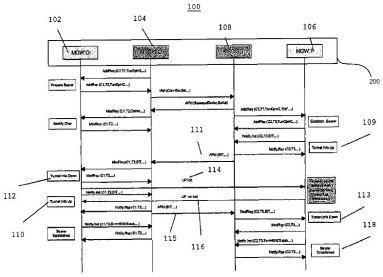
1.7.4. Citation Analysis

Backward Citations: 31 (Telefonaktiebolaget Lm Ericsson: 4, Samsung Group: 2, Unassigned: 2, Toshiba Corporation: 2, Alcatel-lucent: 2, Qualcomm, Inc.: 2, Google Inc.: 2, Siemens Ag: 2, Nec Corporation: 1, Nortel Networks Corporation : 1, Others: 11)

Forward Citations: 0

1.8. US 8,265,088

Title	Method and apparatus for a fast installation of an ip user connection over a 3gpp nb interface under application of the bicc â€œdelayed backward bearer establishmentâ€ and avoidance of failure



Priority Date	2005-08-18	**Filed Date**	2006-08-09
Publication Date	2012-09-11	**Expiration Date**	2027-05-11
Inventors	Belling, Thomas, Goerbing, Andrej, Kochanowski, Ralf, Seitter, Norbert, Wadeck, Marcelo Nelson		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	6.1 years	**Claims**	15
Backward Citations	8	**Forward Citations**	0
Family Members	4	**Litigation**	No
Active Family No:	EP1755304A1|MX2008002304A|RU2423013C2|CN101243674B		
Abstract	An IP user data transport connection is established between a Media Gateway O and a Media Gateway T according to the BICC “Delayed Backward Bearer Establishment”. The Media Gateway O sends an IPBCP Accepted message towards the Media Gateway T upon receipt of an IPBCP Request message from Media Gateway T. The Media Gateway O sends data within the user data transport connection towards the Media Gateway T. The user data may arrive at the Media Gateway T before the IPBCP accepted message. The Media Gateway T retrieves the source IP address and Port number from a user data transport connection IP packet received the Media Gateway O, and sends the first user data transport connection IP packet(s) towards the Media Gateway O upon receipt of a user data transport connection IP packet from the Media Gateway O, using the retrieved IP Address and Port number as destination.		

1.8.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
4	3	3	4	

1.8.2. Claims Analysis

Independent Claims:	2
Dependent Claims:	18
Total Claims:	20
Shortest Independent Claim:	#1 (152 words)
Longest Independent Claim:	#19 (182 words)

1.8.3. Classification Analysis

IP Classifications: 1
H04L 12/56: Packet switching systems

US Classifications: 1
: Bridge or gateway between networks

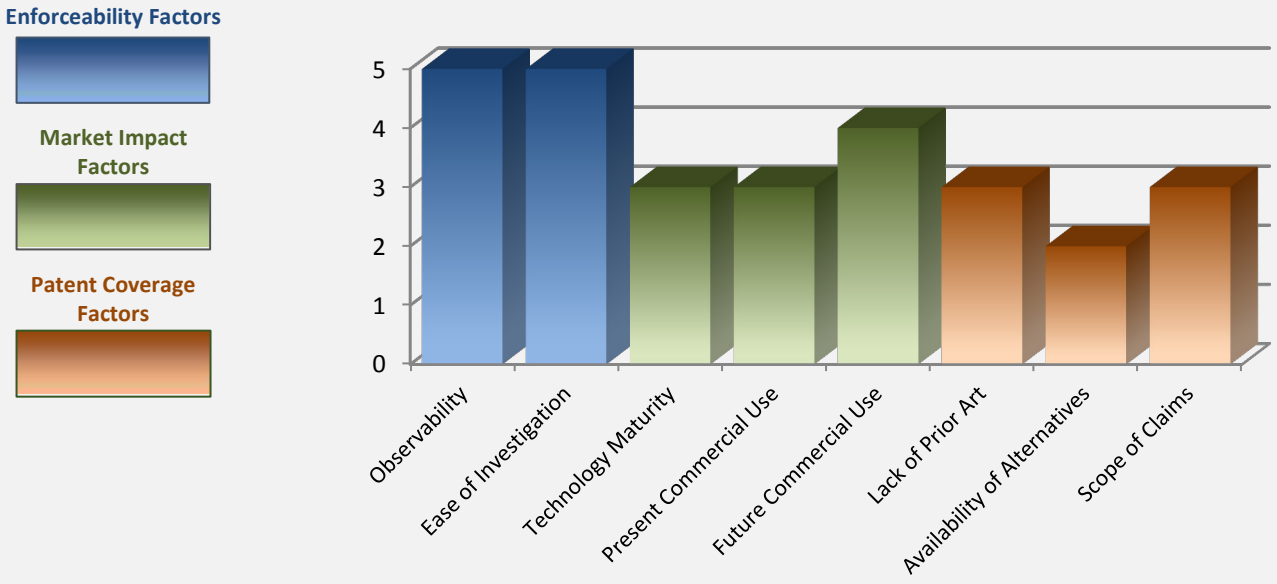
1.8.4. Citation Analysis

Backward Citations: 8 (Nokia Corporation: 2, Rockstar Consortium: 2, Telefonaktiebolaget LM Ericsson: 1, Unwired Planet Inc: 1, Unassigned: 1, Samsung Group: 1)

Forward Citations: 0

1.8.5. US 8,265,088 TAEUSworks Evaluation

TAEUSworks Average Score: 3.50



1.8.5.1. Factors Relating to Patent Enforceability

Factor	Score (1-5)	Comments
Observability	4	Documentation (compliance with specific 3GPP sections/protocols) should provide the information necessary to provide positive answers.
Ease of Investigation	3	The ability to access specific carrier's data network 3GPP compliance documentation is key to investigating specific carriers.

1.8.5.2. Factors Relating to Market Impact

Factor	Score (1-5)	Comments
Technology Maturity	3	The technology is mature and continues to be used within 3GPP data compliant networks.
Present Commercial Use	4	In common usage in 3GPP data networks
Future Commercial Use	4	Will continue to be used into the future

1.8.5.3. Factors Relating to the Patent Coverage

Factor	Score (1-5)	Comments
Lack of Prior Art	3	Early priority date (8/05) should be sufficient to insulate this patent from most prior-art concerns.
Availability of Alternatives	4	Bearer Independent Call Control protocol is specified in the 3GPP standards. This limits alternatives due to the requirement to remain standard compliant.
Scope of Claims	3	Good claim language with broad applicability to 3GPP compliant data networks

1.8.5.4. Summary and Comments

3GPP compliance is common among all of the major cellular data networks operating in the US. Compliance however does not require 100% implementation of the standard and therefore each individual supplier "tweaks" their network to optimize the characteristics most important to their specific product and hardware/software implementation.

Back haul costs are rapidly increasing as wireless data rates increase. The technologies taught in this patent offer a method to reduce backhaul costs by implementing a delayed (timing independent) data access and consumer supply system that meets LTE (4G) requirements.

In order to accurately produce a claim chart against a specific network or carrier it will be necessary to research the networks standard compliance (implementation of specific standard sections implemented) by the supplier.

1.8.5.5. Companies in the Same Technology Field as US 8,265,088

Company	URL
Apple	https://www.apple.com/accessibility/osx/voiceover/
Blackberry	http://us.blackberry.com/legal/accessibility.html
Google	https://www.google.com/accessibility/
Microsoft	http://windows.microsoft.com/en-us/windows/hear-text-read-aloud-narrator#1TC=windows-8

1.8.6. US 8,265,088 Evidence of Use Report

US Patent 8,265,088 Claim 1 Limitations	3GPP Standards for BICC – Delayed Backward Bearer Establishment
1. A method for establishing an IP transport user connection, the method comprising: employing a Bearer Independent Call Control "Delayed Backward Bearer Establishment" between a network entity Media Gateway O and a network entity Media Gateway T within an IP network;	IP transport user connections that employ BICC (Delayed Backward Bearer Establishment) is performed in the direction "opposite/reverse" to the call establishment direction. If the call is established between Gateway O -> Gateway T, the Delayed Backward Bearer Establishment direction is from Gateway T -> Gateway O. Bearer control information exchanges : In Fast bearer setup (forward or backward) and in delayed forward bearer establishment procedures, the IP bearer establishment is done in the forward direction, i.e. the IPBCP request is sent from the originating towards the terminating MGWs; the bearer establishment request is sent in the IAM message in fast (forward or backward) procedures, while it is sent in subsequent APM message, after a first IAM/APM exchange, in case of delayed forward bearer establishment. In reverse, in the Delayed backward bearer establishment procedure, the IP bearer establishment is done in the direction reverse to the call establishment direction, i.e. the IPBCP request is sent from the terminating towards the originating MGWs, through a backward APM message.[12] Several options are included for the handling of bearers – in general: 1) A bearer connection is set up and released for each call set-up and release. The bearer set-up is initiated in the forward direction. 2) A bearer connection is set up and released for each call set-up and release. The bearer set-up is initiated in the backward direction. 3) The bearer connection is not released at the end of the call, but is maintained, and can be reused for a subsequent call (reuse of idle bearers is a network option, see Annex B).

[12] http://telecomprotocols.blogspot.com/2013/01/type-of-bicc-calls.html#!

US Patent 8,265,088 Claim 1 Limitations	3GPP Standards for BICC – Delayed Backward Bearer Establishment
sending an IP Bearer Control Protocol Accepted message from the Media Gateway O towards the Media Gateway T;	When the Delayed Backward Bearer network is establishment, an accept message is sent from the media Gateway O -> media Gateway T During the backward set-up procedure, 10.2.1.1.2.1.2, whilst awaiting a Bearer Set-up indication from the BCF, (item 4)), reception of a BICC_Data indication primitive, (corresponding to an APM message), including Action indicator set to *"Use idle"* indicates that an existing bearer is to be used for this call. In this case a request to reuse idle bearer is passed to the BCF, including the BNC-ID (value received in the BICC_Data indication primitive). 1) If the BCF accepts this request a BICC_Data request primitive is issued, (corresponding to an APM message), including: Action indicator set to *"Switched"*. This indicates successful completion of the outgoing set-up procedure. 2) If the BCF fails to accept this request the call instance is reset according to 10.2.9.3. (Use of reset causes the realignment of system resources.)[13]

[13] ITU-T Q.1901 SERIES Q: SWITCHING AND SIGNALLING Bearer independent call control protocol

US Patent 8,265,088 Claim 1 Limitations	3GPP Standards for BICC – Delayed Backward Bearer Establishment

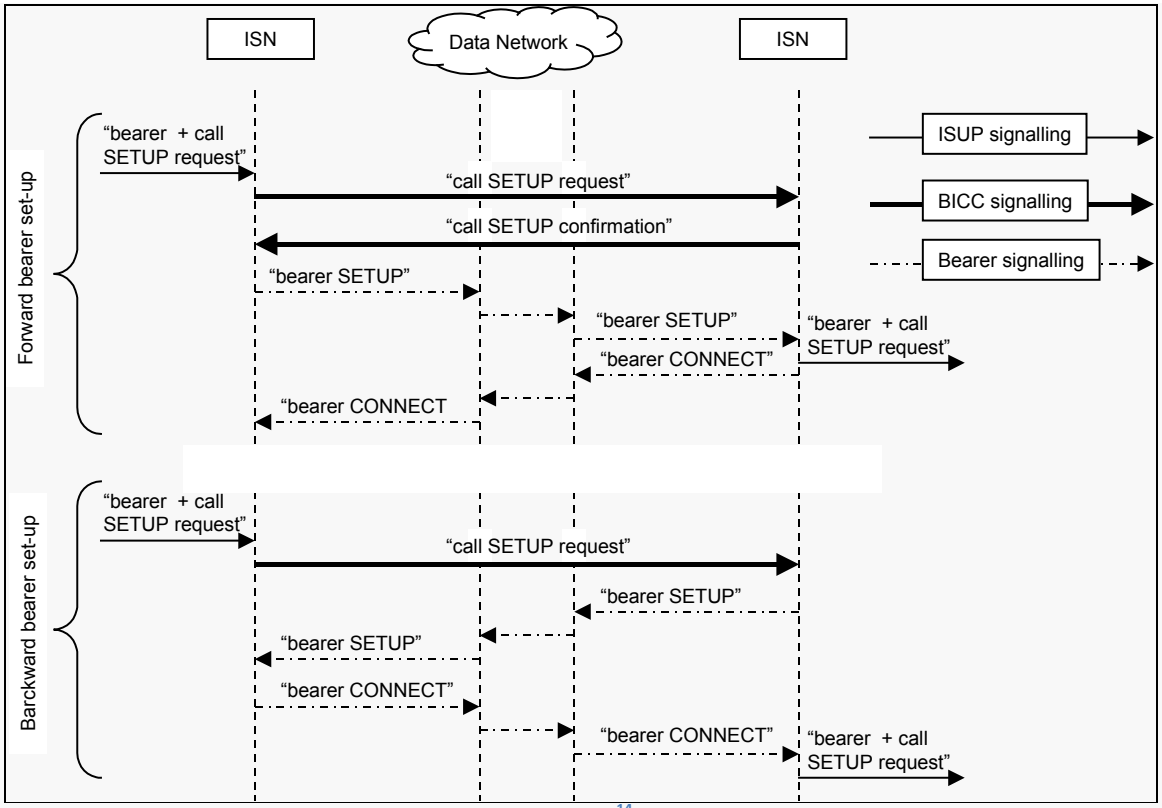


Figure 4.[14]

[14] ITU-T IP/MediaCom 2004 Workshop April 26, 2001

US Patent 8,265,088 Claim 1 Limitations	3GPP Standards for BICC – Delayed Backward Bearer Establishment
sending packet(s) within a user data transport connection towards the Media Gateway T:	When the Delayed Backward Bearer network is established, packets are sent (from media Gateway O -> media Gateway T) within a user data transport connection. **Delayed backward tunneling** When the MGW sends the Tunnel Information Up procedure, the (G)MSC server sends the received tunnel data in the Tunnel Information message to the preceding node (bullet 3 in example, clause 15.4). When the MGW receives an Nb User Plane Initialization message (bullet 5a in example sequence 15.4). before the subsequent Tunnel Information Down procedure (bullet 6 in example sequence 15.4) the MGW may acknowledge this Nb User Plane Initialization message without waiting for the Tunnel Information Down procedure, and send the acknowledge message towards the IP address and port that were supplied as source within the IP packet transporting the Nb User Plane Initialization message (bullet 5b in example sequence 15.4). The MGW shall use the same RTP Payload-Type number for the acknowledge message, which was used in the RTP header of the packet transporting the Nb User Plane Initialization message.[15] User Transport Subscription ID: The user transport subscription ID is the user identity used to access the IP-CAN. Service Information: The set of information conveyed from the AF to the PCRF over the Tx interface to be used as a basis for PCC decisions at the PCRF, including information about the AF session (e.g. application identifier, type of media, bandwidth, IP address and port number). For the purpose of this document, the following terms and definitions given in [1] apply: IP Flow Packet Flow Service Data Flow[16] The AF provides initial service information to the PCRF in the AA-Request. An AF may communicate with multiple PCRFs. The AF shall contact the appropriate H-PCRF based on the Subscription-Id AVP associated with this application session (e.g., IMS Private ID). The Subscription-ID AVP must resolve to the same H-PCRF as the user transport subscription ID. If the AA-Request contains the Media-Component-Description AVP(s) the PCRF shall store the values for the session based on the service information. If the Specific Action AVP is present in the AAR command, the PCRF shall store the requested notifications for the related IP flows. The PCRF shall check whether the received Service Information requires PCC Rules to be provided to the AGW. This may

[15] 3GPP TSG-CT WG4 Meeting #29 - C4-051692 London, UK. 29th August - 2nd September 2005.
[16] ITU-T IP/MediaCom 2004 Workshop April 26, 2001

US Patent 8,265,088 Claim 1 Limitations	3GPP Standards for BICC – Delayed Backward Bearer Establishment
	depend on the service information and on whether the PCRF has previously been contacted by an AGW for this user. If the PCRF identifies that PCC Rules need to be provisioned, the PCRF shall immediately send a Diameter RA-Request to the AGW to install new PCC Rules as required based on the Service Information. [17]
retrieving a source IP address and Port number by the Media Gateway T from a user data transport connection IP packet received from the Media Gateway O,	Media Gateway T receives a source IP address and a Port number. This data is contained within the user data transport connection IP packet received from Media Gateway O **Delayed backward tunneling** When the MGW sends the Tunnel Information Up procedure, the (G)MSC server sends the received tunnel data in the Tunnel Information message to the preceding node (bullet 3 in example, clause 15.4). When the MGW receives an Nb User Plane Initialization message (bullet 5a in example sequence 15.4). before the subsequent Tunnel Information Down procedure (bullet 6 in example sequence 15.4) the MGW may acknowledge this Nb User Plane Initialization message without waiting for the Tunnel Information Down procedure, and send the acknowledge message towards the IP address and port that were supplied as source within the IP packet transporting the Nb User Plane Initialization message (bullet 5b in example sequence 15.4). The MGW shall use the same RTP Payload-Type number for the acknowledge message, which was used in the RTP header of the packet transporting the Nb User Plane Initialization message.[18] An AF may communicate with multiple PCRFs. The AF shall contact the appropriate H-PCRF based on the Subscription-Id AVP associated with this application session (e.g., IMS Private ID). The Subscription-ID provided by the AF must resolve to the same H-PCRF as the user transport subscription ID. The AF may also include the AF-Charging-Identifier AVP into the message for the charging correlation purposes. The AF may also include the Specific-Action AVP to request notification for certain events, e.g., IP flow termination or IP flow establishment. To allow the PCRF to match the described service IP flows in an unambiguous manner with TFT filter information, the AF shall supply both source and destination IP addresses and port numbers within the Flow-Description AVP, if such information is available.

[17] ITU-T IP/MediaCom 2004 Workshop April 26, 2001
[18] 3GPP TSG-CT WG4 Meeting #29 - C4-051692 London, UK. 29th August - 2nd September 2005.

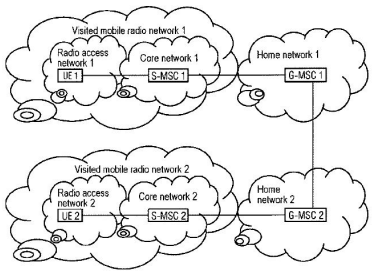
US Patent 8,265,088 Claim 1 Limitations	3GPP Standards for BICC – Delayed Backward Bearer Establishment
sending by the Media Gateway T upon receipt of the user data transport connection IP packet from the Media Gateway O a first user data transport connection IP packet(s) towards the Media Gateway O; and	Media Gateway T responds to Media Gateway O upon receipt of the user data transport connection IP packet. Sending by the Media Gateway T upon receipt of the user data transport connection IP packet from the Media Gateway O a first data transport connection IP packet back to Media gateway O The PCRF may contact the AF at the UE resource reservation by sending the Re-Auth-Request message with a request for the service information. The AF shall respond with the Re-Auth-Answer message containing the Media-Component-Description AVP(s). The information in the Media-Component-Description AVP(s) may be based on the session description information negotiated within the AF session signalling. The AF does not need to send a new authorization request back to the PCRF when receiving a Re-Auth-Request message with a request for the service information. The AF may receive an access network charging identifier and access network charging address for charging correlation purposes from the PCRF in a separate Re-Auth-Request message after the flow has been authorized. The AF does not need to send a new authorization request when receiving a Re-Auth-Request message with access network charging identifier and access network charging address.[19]
using the retrieved IP Address and Port number as a destination.	Media Gateway T uses the retrieved IP Address and Port number as a destination to respond to Media Gateway O. The forward and backward RTP bearers used to transport one Nb UP connection shall be set up together after an IPBCP handshake with a Request message and an Accepted message has succeeded. Each MGW shall signal its peer MGW with the RTP port number. The RTCP port number shall be the next higher number.[20] The forward and backward RTP bearers used to transport one Nb UP connection shall be set up together after an IPBCP handshake with a Request message and an Accepted message has succeeded. Each MGW shall signal its peer MGW with the RTP port number. The RTCP port number shall be the next higher number.[21]

[19] ITU-T IP/MediaCom 2004 Workshop April 26, 2001
[20] 3rd Generation Partnership Project; Technical Specification Group Core Network; Core network Nb data transport and transport signalling (Release 6)
[21] 3rd Generation Partnership Project; Technical Specification Group Core Network; Core network Nb data transport and transport signalling (Release 6)

1.9. US 7,899,086

Title	Method for signaling of a change from a first service to a second service during a call by modifying the utilized codec

FIG 1



Prior Art

Priority Date	2005-02-10	**Filed Date**	2006-01-24
Publication Date	2011-03-01	**Expiration Date**	2028-02-26
Inventors	Belling, Thomas		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	5.1 years	**Claims**	24
Backward Citations	4	**Forward Citations**	2
Family Members	6	**Litigation**	No
Active Family No:	EP1847148A1|DE102005006174A1|CA2597575A1|MX2007009553A|JP4748737B2|CN101116370B		
Abstract	A method is provided for signaling a change from a first service to a second service during a call between a terminal device and a further terminal device over at least one communication network. When a change from the first service to the second service takes place during a call between the terminal device and the further terminal device, a network unit of the communication network, via which the terminal device is currently communicating to at least one further network unit, signals whether the change was initiated by the terminal device or by a network unit of the communication network.		

1.9.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
4	4	4	4	

1.9.2. Claims Analysis

Independent Claims:	3
Dependent Claims:	21
Total Claims:	24
Shortest Independent Claim:	#1 (157 words)
Longest Independent Claim:	#20 (171 words)

1.9.3. Classification Analysis

IP Classifications: 2
H04M 3/00: Automatic or semi-automatic exchanges
H04W 76/04: Connection manipulation

US Classifications: 1
: Using a dedicated signaling channel (i.e., D-channel)

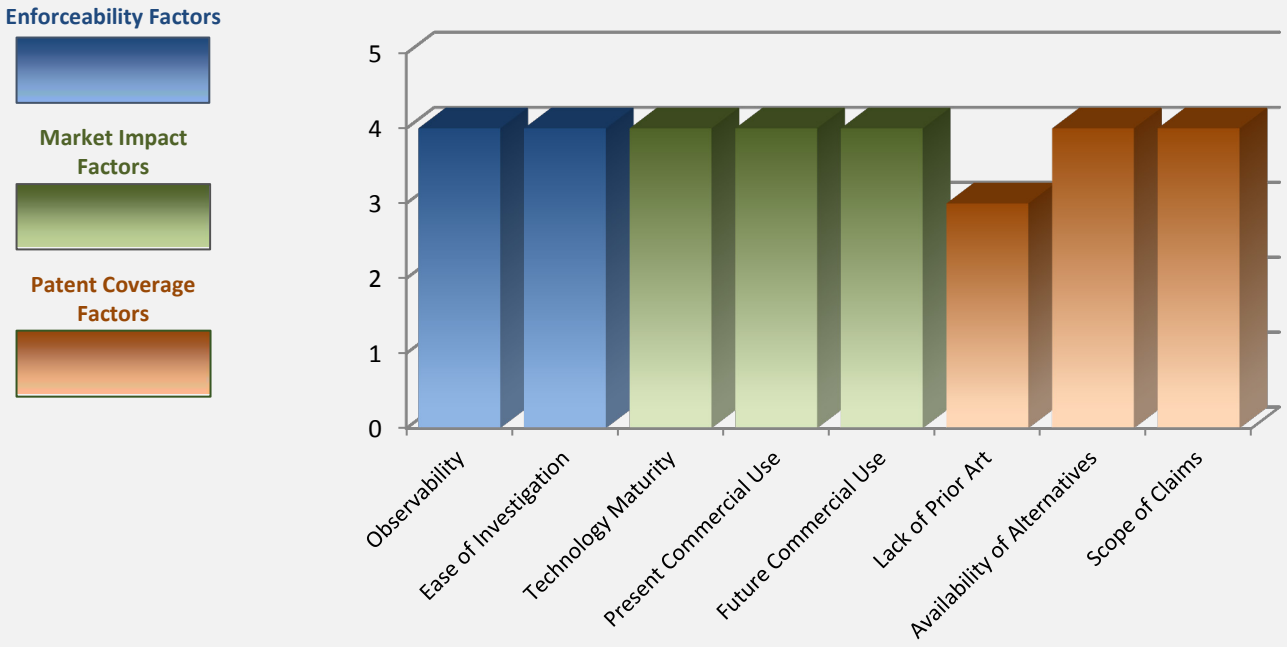
1.9.4. Citation Analysis

Backward Citations: 4 *(Samsung Group: 1, Nokia Corporation: 1, QUALCOMM, Inc.: 1, Bain Capital, LLC: 1)*

Forward Citations: 2 *(Telefonaktiebolaget LM Ericsson: 2)*

1.9.5. US 7,899,086 TAEUSworks Evaluation

TAEUSworks Average Score: 3.88



1.9.5.1. Factors Relating to Patent Enforceability

Factor	Score (1-5)	Comments
Observability	4	Documentation and hands on testing will provide positive answers.
Ease of Investigation	4	Technical literature with 3GPP standards review coupled with basic testing will provide the information necessary.

1.9.5.2. Factors Relating to Market Impact

Factor	Score (1-5)	Comments
Technology Maturity	4	The technology is mature and continues to be used within 3GPP networks
Present Commercial Use	4	In common usage in 3GPP data networks
Future Commercial Use	4	Will continue to be used into the future.

1.9.5.3. Factors Relating to the Patent Coverage

Factor	Score (1-5)	Comments
Lack of Prior Art	3	Patent priority date coupled with the 3GPP Standard publish dates should reduce PA issues however, a thorough PA search should be conducted.
Availability of Alternatives	4	Alternatives are unknown. The patent covers the technology presently used as defined in the 3GPP standard.
Scope of Claims	4	The claims are limited by the fact that the technology requires non-keyword based searching. Good claim language with broad applicability that has been standardized by the 3GPP 3rd Generation Partnership Project.

1.9.5.4. Summary and Comments

3GPP standard networks are in use all over the world. This standard requires that the network and local devices be capable of switching multimedia modes to minimize bandwidth used and to comply with QoS requirements. Switching modes (multimedia video/audio -> audio only) may be required due to lack of available bandwidth, noise on the network, etc.

Patent US7899086 teaches a method that allows either end terminal or the network itself to change multimedia modes in response to network conditions or changes in network conditions. The technology taught in the '086 has also been standardized by the 3rd Generation Partnership Project, in the 3GPP standard "Technical Specification Group Core Network" series of documents and is therefore probably in use in multiple networks worldwide.

1.9.5.5. Companies in the Same Technology Field as US 7,899,086

Company	URL
NEC Corporation	http://www.nec.com/
AT&T Inc.	http://www.att.com/
Telefonaktiebolaget LM Ericsson	http://www.ericsson.com/
Fujitsu Limited	http://www.fujitsu.com/us/
Alcatel-Lucent	http://www.alcatel-lucent.com/
Nokia Corporation	http://company.nokia.com/en
Nippon Telegraph & Telephone Corp.	http://www.ntt.co.jp/index_e.html
Panasonic Corporation	http://panasonic.net/
Hitachi, Ltd.	http://www.hitachi.com/
Huawei Technologies Co., Ltd.	http://www.huawei.com/us/
QUALCOMM, Inc.	https://www.qualcomm.com/
Samsung Group	http://www.samsung.com/us/
Toshiba Corporation	http://www.toshiba.com/us/business
Motorola Solutions Inc	http://www.motorolasolutions.com/US-EN/Home?WT.tsrc=Georedirects
Blackberry Limited	http://us.blackberry.com/
Sony Corporation	http://www.sony.com
ZTE Corporation	http://www.zteusa.com/
LG Electronics Inc.	http://www.lg.com/us
Avaya Inc	http://www.avaya.com/usa/
Verizon Communications Inc.	http://www.verizon.com/home/verizonglobalhome/ghp_landing.aspx

1.9.6. US 7,899,086 Evidence of Use Report

US 7,899,086 Claim 1 Limitations	3GPP Standards for Service Change and UDI Fallback Service
1. A method for signaling a change from a first service to a second service during a call between a terminal device and a further terminal device over at least one communication network, comprising:	The 3GPP standard (3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification/3GPP TS 23.172 V6.4.0) defines a sequence of events that allows switching between video and talk depending of conditions, etc. Scope The present document describes the Service Change and UDI Fallback (SCUDIF) feature. This service is available to UDI/RDI multimedia calls and allows users to achieve successful call establishment when end to end circuit-switched (CS) multimedia is not possible (fallback to speech) or when signalling of the feature is not possible in the network (fallback to preferred service or speech). Furthermore, it allows the users to swap between a multimedia service and basic speech during an established call.[22] 4.3 Core Network procedures In order to provide the capability in the network to transmit the request for service change (upgrade to multi-media and fallback to speech) both at call setup and during the active state of a call, the normal Out-of-Band Transcoder Control procedures, described in 3GPP TS 23.153 [2] shall be used. The following text describes the codec type to be used, the mapping between the terminal interface described above, and the different IEs to be used for the codec negotiation procedures at both the originating and the terminating MSC.[23]
when a change from the first service to the second service takes place during a call between the terminal device and the further terminal device, signaling by a network unit of the communication network, via which the terminal device is currently communicating, to at least one further network unit whether the change was initiated by the terminal device or by a network unit of the communication network; and	Service Change (from the first service to the second service) takes place during a call between the terminal device (first device) and the further terminal device (distant/second device) when either of the terminal devices signals a change or one of the network units makes a change (either local or distant). 4.2.4 User-initiated Service change in the active state At any given time, if either of the call parties wants to change from the current active mode to the other mode via MMI, the terminal shall activate an In-Call Modification procedure. Using this procedure, described in 3GPP TS 24.008 [3], clause 5.3.4.3, the UE shall send a MODIFY message containing the BC-IE to change to. This BC-IE shall be one of those already negotiated at call setup. As a result, the MSC shall then invoke the service change procedure (see clause 4.3.5). If the request is accepted, the originating MSC sends a MODIFY COMPLETE message to the UE including the BC-IE of the mode to switch to (see figure 4.13). If the

[22] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2 (Release 6)
[23] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2 (Release 6)

US 7,899,086 Claim 1 Limitations	3GPP Standards for Service Change and UDI Fallback Service
	request is rejected, the MSC sends a MODIFY REJECT message to the UE including the BC-IE from the current active mode (see figure 4.14). In the case the MSC has determined that the other mode is unavailable (e.g. a fallback to either mode has occurred), it shall reject the MODIFY request at once by replying with a MODIFY REJECT message. On the remote side, the MSC shall initiate an In-Call Modification procedure towards the terminal using the MODIFY message. For a service change from speech to multimedia, the terminal shall request confirmation from the user unless configured differently. For a service change from multimedia to speech, the terminal shall accept the request without requesting confirmation from the user. If the change is accepted, the UE shall reply to the MSC with a MODIFY COMPLETE message, whereas a MODIFY REJECT message shall be sent if the change is rejected. NOTE: Privacy concerns strongly advise that any change to multimedia mode, unless explicitly allowed by the user in the terminal configuration settings, triggers a question to the user in order to confirm or decline the change. The details on how to provide the user interaction are left for implementation. When receiving a MODIFY message, a terminal shall not interrupt the data traffic and shall continue to send and receive data in the old mode, even after the terminal accepts the modification with a MODIFY COMPLETE message. The radio bearer will then be reconfigured by the network. After the radio bearer has been reconfigured, the terminal shall send and receive data in the new mode.[24]
	4.3.1 Multimedia codec The codec negotiation procedures transmit an ordered list of preferred codecs from the originating to the terminating MSC. A node that requires interaction with the user plane will remove the codecs it does not support. The terminating MSC shall select the codec to use ("selected codec") from the list of available codecs for the call. This selection shall be based on the received list of codecs and on the information given by the terminating UE in the CALL CONFIRMED message. A dummy codec (defined in 3GPP TS 26.103 [4]) is included in the codec list to indicate that a multimedia call is requested. Two dummy codecs are defined: - Dummy codec 1 shall be used for a terminal-initiated service change from speech to multimedia. Based on the operator policy the dummy codec 1 may be used for the network-initiated service change from speech to multimedia, if one of the MSCs has not included the dummy codec 2 to the available codec list during the call setup phase. This dummy codec 1 is in the present document referred to as the 3G-324.M codec. It shall be supported by any SCUDIF compliant MSC. - Dummy codec 2 shall be used for a network-initiated service change from speech to multimedia, if all the MSCs in the call

[24] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2 (Release 6)

US 7,899,086 Claim 1 Limitations	3GPP Standards for Service Change and UDI Fallback Service
	have indicated the dummy codec 2 in the available codec list during the call setup phase. This codec is in the present document referred to as the 3G-324.M2 codec. The 3G-324.M2 codec is identical to the 3G-324.M codec except for the CoID. It shall be supported by any SCUDIF compliant MSC that supports a network- initiated service change from speech to multimedia. NOTE: An Rel-5 MSC does not support the 3G-324.M2 codec. A Rel-6 MSC not supporting the optional network-initiated service change procedures could also not support the 3G-324.M2 codec. These codec are in the present document referred to as the 3G-324.M codec. This codec is only used by the Core Network and shall not be sent from the terminal in the Supported Codec List IE. The 3G-324.M codec shall be indicated to the MGW as codec media stream property in accordance with the3GPP TS 29.232[12]. The 3G-324.M codec shall be indicated to the MGW also if the 3G-324.M2 codec is selected in Out-of-Band Transcoder Control procedures. The MGW shall treat the User Plane configuration (SDU Format) of the 3G-324.M codec as for PCM, as defined in 3GPP TS 26.102 [13].[25]
adding at least one parameter to a MuMe dummy codec, said parameter indicating whether the change was initiated by the terminal device or by a network unit of the communication network;	The service change process adds at least one parameter to a MuMe dummy CODEC. This parameter indicates whether the change was initiated by one of the terminal device s or one of the network devices. 4.3.5.1 Mid-Call Codec Modification Procedure For Service Change The Codec Modification procedures as defined in 3GPP TS 23.153 [2] shall be applied with the following specific additional rules for the Service Change procedure. In order to prevent the MGW generating an error or seizing resources during the interim period, when its terminations are being altered and it may have a speech codec on one side of the context and the 3G-324M codec on the other side the Server shall modify the Stream–mode of the affected terminations to inactive during the Service change and shall restore the stream mode to active – (send/receive – bothway) on completion of the service change procedure. In order to restore the stream mode to active, the MSC servers shall use the “Modify Bearer Characteristics” procedure for Iu terminations and for Nb terminations towards the succeeding node with respect to the “Modify Codec” message. The MSC servers shall use the “Confirm Bearer Characteristics” procedure for Nb terminations towards the preceding node with respect to the “Modify Codec” message. If the affected termination’s stream mode is inactive a MGW shall not reject a “Modify Bearer Characteristics” or a “Reserve Bearer Characteristics” procedure because the multimedia codec and a speech codec are interconnected simultaneously in the same context. For a service change where the CN shall initiate the IuUP on the Nb interface, the MSC server terminating the service change

[25] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2 (Release 6)

US 7,899,086 Claim 1 Limitations	3GPP Standards for Service Change and UDI Fallback Service
	shall trigger the IuUP initialization towards the core network by setting the IuUP initialization direction to "out" in the "Confirm Bearer Characteristics" procedure for the corresponding termination towards the core network. Example call flows are shown in Figure 4.3.5.1/1 to 4.3.5.1/10.[26]

[26] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2 (Release 6)

US 7,899,086 Claim 1 Limitations	3GPP Standards for Service Change and UDI Fallback Service

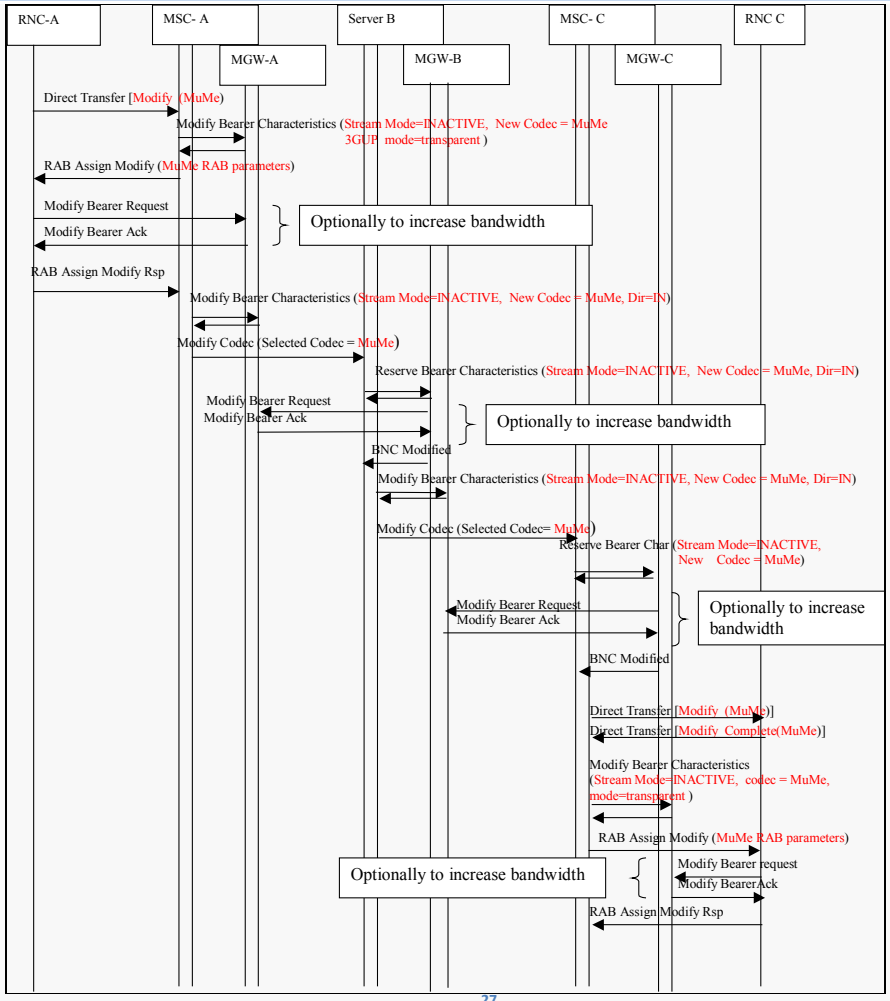


Figure 5.[27]

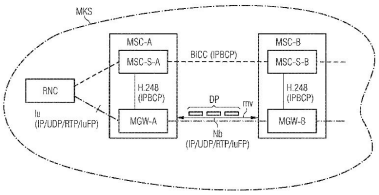
[27] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2 (Release 6)w

US 7,899,086 Claim 1 Limitations	3GPP Standards for Service Change and UDI Fallback Service
the change including a change from a voice telephony service to a video telephony service, text telephony service or image telephony service.	A service change initiated by a terminal or network device includes switching from voice telephony, video telephony, text telephony or image telephony in any order or combination. 4.1 General Requirements The Service Change and UDI Fallback (SCUDIF) is a function which applies to UDI/RDI multimedia calls (see 3GPP TS 22.101 [8], clause 7.2.1), and shall support the following: Fallback to speech during call setup: allow a user to attempt to set up a multimedia call, and try a speech connection if the former doesn't succeed; Fallback to the less preferred service (speech or multimedia) during call setup: allow the terminating side via specific settings for this service in the terminal to accept or reject a multimedia call, without interrupting the call setup; Fallback to the preferred service (speech or multimedia) or speech during call setup: allow the call setup to proceed with a single service if the transit network does not support the signalling of this functionality; BC negotiation at the terminating side: allow the terminating side via specific settings for this service in the terminal to turn a speech call (with service change) into a multimedia call and vice-versa; Service change: allow a speech call to be turned to multimedia by either of parties, and back to speech, through a successful in call modification procedure; Allow any of the users to reject a multimedia request from the other party while in speech mode. Network-initiated service change: The network shall initiate a sevice-change from multimedia to speech during the active call if a multimedia call can no longer be supported. If a multimedia call can again be supported at a later point in time, the network may initiate a service change from speech to multimedia. To fulfil: - service request signalling between the UE and the MSC; - service request signalling across the Core Network. This functionality is not supported for multimedia with Fixed Network User Rate set to 32 kbit/s. In this case, the MSC shall revert to a multimedia only call.[28]

[28] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals;Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2 (Release 6)

1.10. US 8,811,162

Title	Network element for allocating at least one payload data connection to at least one multiplex connection



Priority Date	2006-01-27	**Filed Date**	2011-10-31
Publication Date	2014-08-19	**Expiration Date**	2029-08-10
Inventors	Belling, Thomas		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	2.8 years	**Claims**	19
Backward Citations	13	**Forward Citations**	0
Family Members	11	**Litigation**	No
Active Family No:	US8089867B2|JP5185827B2|ES2329420T3|EP2073480B1|EP1994714B1|EP1814278B1|EA200900848A1|DE502007001133D1|DE502006003374D1|CN102710654A|AT437520T		
Abstract	The invention relates to a network element for allocating at least one user data link to a multiplex connection between a first network element and a second network element. The first element generates a first signaling message and transmits it to the second network element, the first signaling message indicating that the first element is available to transfer at least one respective user data link via one respective multiplex connection. The second network element assigns one multiplex connection between the first and second network element to each of the user data link or selects a transfer outside a multiplex connection for the user data link in accordance with the indicated availability of the first network element and depending on whether the second network element supports the transfer of the at least one user data link via multiplex connection.		

1.10.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
3	3	3	4	Data\Voice multiplex communication within a network

1.10.2. Claims Analysis

Independent Claims:	1
Dependent Claims:	18
Total Claims:	19
Shortest Independent Claim:	186 words
Longest Independent Claim:	None

1.10.3. Classification Analysis

IP Classifications: 3
H04L 12/26: Monitoring arrangements, Testing arrangements
H04L 29/06: characterised by a protocol
H04W 4/00: Services or facilities specially adapted for wireless communication networks

US Classifications: 1
: DATA FLOW CONGESTION PREVENTION OR CONTROL

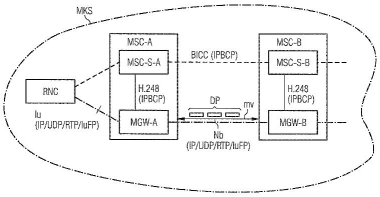
1.10.4. Citation Analysis

Backward Citations: 13 *(Unassigned: 4, Huawei Technologies Co., Ltd.: 1, UTStarcom Holdings Corp.: 1, Baranitharan Subbiah: 1, Telefonaktiebolaget LM Ericsson: 1)*

Forward Citations: 0

1.11. US 8,089,867

Title	Method for allocating at least one user data link to at least one multiplex connection



Priority Date	2006-01-27	**Filed Date**	2007-01-24
Publication Date	2012-01-03	**Expiration Date**	2028-11-17
Inventors	Belling, Thomas		
Current Assignee	Siemens Aktiengesellschaft	**Location**	US
PTO Length	2.8 years	**Claims**	19
Backward Citations	8	**Forward Citations**	0
Family Members	11	**Litigation**	No
Active Family No:	US8811162B2|JP5185827B2|ES2329420T3|EP2073480B1|EP1994714B1|EP1814278B1|EA200900848A1|DE502007001133D1|DE502006003374D1|CN102710654A|AT437520T		
Abstract	The invention relates to a method for allocating at least one user data link to a multiplex connection provided between a first network element and a second network element. According to the method, the first network element generates a first signaling message and transmits the same to the second network element, the first signaling message indicating to the second network element that the first network element is available to transfer the at least one respective user data link via one respective multiplex connection. The second network element assigns one multiplex connection between the first network element and the second network element to each of the at least one user data link or selects a transfer outside a multiplex connection for the user data link in accordance with the indicated availability of the first network element and depending on whether the second network element supports the transfer of the at least one user data link via multiplex connection. The possibility of allocating the at least one user a data link to a multiplex connection is indicated to the first network element by a second signaling message that is generated in the second network element and is transmitted to the first network element.		

1.11.1. Patent Analysis

Observability	Ease of Investigation	Scope of Claims	Commercial Use	Key Words and Phrases
3	3	3	4	Data\Voice multiplex communication within a network

1.11.2. Claims Analysis

Independent Claims:	3
Dependent Claims:	16
Total Claims:	19
Shortest Independent Claim:	#19 (26 words)
Longest Independent Claim:	#1 (207 words)

1.11.3. Classification Analysis

IP Classifications: 1
H04L 12/26: Monitoring arrangements, Testing arrangements

US Classifications: 1
: DATA FLOW CONGESTION PREVENTION OR CONTROL

1.11.4. Citation Analysis

Backward Citations: 8 (Unassigned: 3, Telefonaktiebolaget LM Ericsson: 2, Huawei Technologies Co., Ltd.: 1, UTStarcom Holdings Corp.: 1, Baranitharan Subbiah: 1)

Forward Citations: 0

2. Exhibit A: TAEUSworks Evaluation Criteria

2.1. Patent Enforceability Factors

2.1.1. Observability

Observability is the degree to which evidence of the patented technology will exist in the target product. While Observability and Ease of Investigation are often related, they are not the same. Technology that is highly observable on a product may still be quite difficult to investigate, such as requiring the fabrication of custom hardware, or the extraction and analysis of an extensive amount of circuitry from an integrated circuit. Claim limitations that are not present on the final product are not observable. Processes that are internal to a company and require access to proprietary production documents to prove are typically not observable in a product and are therefore very difficult to investigate. A low observability rating may also reflect the inherent difficulty in obtaining product/samples for investigation. The rating is based on the patent review and the reviewer's expertise and background in the art.

Rating	Description	
5	Plainly advertised or incorporated into an industry standard	The claim elements can be matched with an industry standard or part thereof. Alternatively, the manufacturer openly advertises features of the product that are infringing the patent claims.
4	Positive answer can be obtained via reverse engineering.	After obtaining a sample or applying black box testing, the results will demonstrate the use of the claim elements.
3	Negative answer can be concluded via reverse engineering or black box testing.	It is often possible to exclude infringement by black box testing. If an observed behavior cannot be the result of patented technology, the use of the technology can be excluded.
2	Reverse engineering will yield inferential evidence at best.	Reverse engineering can raise some suspicions that a given product infringes on a patent but results may be ambiguous. For example, when a specific behavior or effect is the outcome of the use of the technology, and a similar effect can be caused by alternative methods, it may be possible to infer, but not prove, that the patented technology is use by the target product.
1	Cannot be observed directly even after reverse engineering.	There is no way of proving or inferring from anything that is obtainable in the public domain that the patented technology is being used. An example could be a process patent that specifies conditions in the industry environment that cannot be demonstrated or inferred by investigating the finished product.

2.1.2. Ease of Investigation

The Ease of Investigation rating deals with the type, difficulty and expense of work required to determine if a product is using the patented technology. While Ease of Investigation and Observability are often related, they are not the same. Technology that is highly observable on a product may still be quite difficult to investigate. A low rating in Ease of Investigation will typically translate to a relatively high cost for obtaining positive evidence of possible infringement, but in certain cases this may not be true. In particular, it is sometimes much easier to obtain negative results (show that the technology is not being used) than to obtain positive results (prove that it is being used). In these cases, the cost of proving use can often be disseminated across a fairly large number of targets, so that on a per-target basis the overall cost remains relatively low. TAEUS specializes in finding the most cost effective method for investigation of specific targets, so that even a patent that would be difficult to investigate in general can often be investigated effectively through “black box” testing.

Rating	Description	
5	Technical literature review will be likely to yield a conclusion	The information is advertised or provided in data sheets, user’s manuals or service manuals by the manufacturer, or the patented technology is clearly visible without requiring reverse engineering efforts.
4	Relatively simple reverse engineering, testing, or review of technical literature and/or standards provides inferential evidence	Reverse engineering is required, but only in its simplest form. For example, a warning LED to indicate the improper insertion of expansion cards may not be visible on the outside of the equipment.
3	Standard reverse engineering or black box testing techniques required	It is possible to show the use of the claimed technology using standard reverse engineering techniques. "Standard" reverse engineering in this case could comprise functional analysis of signaling pathways via logic analyzer or oscilloscope, or a detailed mechanical analysis of a given design that requires substantial teardown of the product to be investigated.
2	Complex reverse engineering required (e.g. circuit extraction, custom test equipment, or very sophisticated analysis techniques)	Reverse engineering is still possible, but it will require nonstandard equipment or techniques that may have to be developed in order to demonstrate technical similarity. In most cases, the process is time-consuming and encompasses extensive forensic analysis of multiple aspects of the product to provide proof or inferential evidence that the technology is used.
1	Extremely complex or can only be analyzed with access to target’s proprietary data	Even though a violation of a patent may be highly observable, the difficulty of investigation makes the project almost unfeasible unless the target market is extremely large to justify high investigation costs.

2.2. Market Impact Factors

2.2.1. Technology Maturity

This factor indicates where the patented technology lies in the overall life cycle of products that are likely to use the invention. This factor can be used to target specific companies for licensing based upon your licensing strategy and knowledge of the target's product strategy. For example, early implementers are more likely to use embryonic technology, while fast followers are more likely to use growth or mature technology. Low-cost manufacturers are more likely to be using mature or aging technology. This factor reflects the changes in a patent's inherent technical value as related technology evolves. This rating often relates to patent strategy in general – a patent on technology in its early stages of development is often a strong candidate for follow-on patents in the same general area, and is more likely to be a better candidate for synergistic (carrot) licensing, while mature and aging technology is usually a better candidate for assertive (stick) licensing. This is particularly true if the patent is relatively old (i.e. will expire soon) and the rest of the world is just starting to "catch up" to the technology it discloses. The rating is based on the actual patent review and the reviewer's expertise and background in the art.

Rating	Description	
5	The technology is embryonic	The technology is unlikely to be incorporated into current applications, but future use is possible. This situation could be found in cutting edge technology development areas.
4	The technology is in the growth stage	Incorporation is possible in current and future products. Examples could be fuel cell technology, nanotechnology, biomechanical devices, and/or genotyped drug delivery systems that are just emerging.
3	The technology is mature - possible use in current applications, and may be used in the near future	Examples could be telecommunication systems, personal and handheld computers, etc.
2	The technology is aging	The technology is phasing out. It is possibly in current use, but is unlikely to be used in new products. For example, vacuum tubes in electronic devices are still available, but in low production numbers and mostly in niche products.
1	The technology is obsolete	The technology is highly unlikely to be used in current products. This would typically pertain to technology having a life cycle much shorter that the term of the patent. An example of obsolete technology is the use of punch cards instead of electronic data storage.

2.2.2. Present Commercial Use

The Present Commercial Use factor shows the reviewer's best estimate of the industry's actual current use of the technology. This rating is related to Alternatives, but the two are not synonymous. Technology with a large number of alternatives may still be used extremely widely if it provides enough advantage over those alternatives. Likewise, technology may have few alternatives, but address a relatively small market, or the cost to implement the technology in a product is prohibitive.

Rating	Description	
5	Pervasive Use	The technology is implemented in an industry standard for a broad range of products, or is otherwise widely deployed in products. Examples would include patents that pertain to the digital encoding or decoding of audio and video, cellular and wireless telecommunications and networking.
4	Fairly Common	The technology is commonly used in a variety of products, but is not necessarily fundamental to a given area of technology.
3	Very Specialized	Use of the technology is known, but distribution of products using it is confined to niche markets.
2	Possible	It is not known whether the patented technology is used in the current market place but there is a reasonable possibility that an extensive search will identify users of the technology.
1	Not Likely	The patented technology is either difficult to implement or has a wide variety of better alternatives. Although there is a chance that the patented technology may be used, more elegant and effective solutions dominate the market.

2.2.3. Future Commercial Use

The Future Commercial Use factor shows the reviewer's best estimate of the industry's potential future use of the technology. This reflects many of the same factors as the current use of the technology, and adds consideration of such factors as likely growth of this particular market as well as the rate at which alternative technologies are likely to be developed.

Rating	Description	
5	Pervasive Use	The technology will be an essential factor for future mainstream products because of its obvious advantages over earlier technologies that are phasing out. An example is LEDs used for head and taillights in autopage markups.
4	Fairly Common	The technology offers enough advantages to become a major factor in a variety of areas. One example would be the RFID tag technology used for inventory monitoring. Bar coding and other inventory control methods will continue to exist, but the technology will gain a substantial market share.
3	Likely to be Specialized	The technology will be used, but the distribution will not become widespread during the lifespan of the patent. One example is the positional monitoring of the virtual reality P5 Glove. While this technology is slowly catching on in the computer gaming world, it is not expected to reach wide distribution in the near future.
2	Possible	The patent describes a technology that may be advantageous but may require major redesign of mainstream products or acceptance of what are considered today non-standard methods by consumers. There is still a good possibility that the patented technology will be used in niche products Whether or not the technology becomes more widely used depends on many economic and demographic trends that are too complex to be considered in this evaluation.
1	Not Likely	Because of inherent limitations in the patented technology, it is very unlikely that others will use the patented approach.

2.3. Patent Coverage Factors

2.3.1. Lack of Prior Art

This factor gives the reviewer's best estimate of the likelihood of prior art based on the patent review and the reviewer's expertise and background in the art. This rating is not the result of a formal prior art search.

Rating	Description	
5	Very unlikely to have prior art	The invention is novel and unique and the priority date of the patent is early enough to precede any publication on the subject matter. This situation primarily occurs in cases where the priority date of the patent is old, the patented invention is a breakthrough technology that was never envisioned by others, and the patent pushes the technology to a higher level.
4	Unlikely to have prior art	The patent is novel and unique and appears not to be jeopardized by prior art. This usually occurs when the patent improves upon a technical system by replacing the original technology. There is still a possibility to find equivalent technology in technical publications even if the nomenclature at the time of publication was different.
3	Possible prior art	The patent is unique, but the claims are broad enough with a relatively late priority date. This makes the patent potentially vulnerable to prior art, in that somebody else might have invented the same or an equivalent technology. There may also be public knowledge of the invention based on sales anywhere in the world.
2	Strong possibility of prior art	The patented technology is main stream and the claims are overly broad. There is a very high likelihood that any extensive search will turn up equivalent technology preceding the priority date of the patent.
1	Known prior art	The reviewer is aware of potentially invalidating prior art without having to do further research. In this case, the invention is usually a simple improvement of a technical system; the patent is riding on the current technology trend and does not offer truly novel technology. Often, sales of equivalent technology precede the priority date, or the invention would be obvious to anybody based on standard publications.

2.3.2. Availability of Alternatives

This factor indicates the ability of the possible infringer to use alternative technologies to achieve the desired objective. The rating is based on the patent review and the reviewer's expertise and background in the art. This is also called the "design around" factor, that is, how difficult it would be to "design around" the patented technology to avoid infringement.

Rating	Description	
5	Alternatives are impossible	The invention covers the only possible technical solution to a problem. An example would be the transistor or other fundamental invention.
4	Alternatives are unknown	The patent covers the generally accepted solution for a technical problem. Significant R&D efforts would likely be required to provide an alternative. No other possibilities are known but there may be methods to work around the invention.
3	Possible, but very difficult to implement.	Alternatives would require substantial R&D costs, retooling costs, increased product cost, or significant compromises on product performance. For example, a heart computer tomography can be triggered by an acousto-mechanical signal that is derived from the heartbeat and monitored in the thoracic area. A work-around could use the pulse signals in the fingers, but because of the propagation delays and greater variance compared to the actual heart movements, this technology requires compensatory mechanisms and may still not be as accurate, or may be more costly to manufacture, and therefore do not provide the same level of competitive advantage to the product.
2	Possible, but moderately difficult to implement.	In this case, it may or may not be cost effective to attempt to design around the patented technology. In the case of heart computer tomography, the patent might cover the mechanical movements of the thoracic region to trigger the x-ray. A moderately difficult to implement approach could be an EKG as trigger, which is more expensive and technologically more sophisticated, but which also may yield better results. Some product redesign may be required, but this may be more cost effective than licensing the patent.
1	Alternatives are readily available.	Very little cost or effort is associated with implementing a non-infringing alternative. This occurs if the patent claims are very narrow, or if the patent is a minor improvement that offers little advantage in the marketplace. For example, a patent claiming structure having a substrate glued to its back would, from a technical perspective, be weak; it is irrelevant whether the substrate is glued to the back or to the front of the structure.

2.3.3. Scope of Claims

The Strength of Claims licensability factor is based on the language, scope, and technical merits of the claims. While the other rating factors relate primarily to the technology covered by the patent, this factor relates to the degree to which the patent claims actually provide coverage of that technology. For example, some patents are narrowed substantially during prosecution so the body of the patent discloses a number of possible implementations, but only a small number of these are actually covered by the claims. In this case, the patent itself may provide information on how to use fundamentally similar technology without infringing any claims. Evaluation of this factor takes into account the types of claims in the patent to assess the breadth of scope of the claims, and assess the technical strength of the claims from the perspective of a person of ordinary skill in the art.

Rating	Description	
5	Claims are extremely broad and fundamental to the technology	The patent claims describe what may be called the principle of operation for the new invention without going into detailed descriptions that would pose limitation on the applicability and assertion of the claims. It is likely that the patented technology will apply across a broad range of products.
4	Good claims. Broad applicability	The claim language centers on the patented technology or device but the claims are broad enough to not limit the assertability to the specific technology area or product. The claims may have limitations that narrow the breadth and scope of coverage.
3	Good claims, but may have restrictions or references that limit the scope of applicability	The claim language focuses on the invention, but the novelty aspect of the invention is the solution to a detailed problem. In this case, the claim language may be strong, but the applicability may be restricted to a specific area of technology.
2	Relatively specific/narrow claims	The claim language is complex and contains many limitations that narrow down the focus to very specific aspects of the technology.
1	Very complex, narrow, unclear, and/or specific.	Very difficult to enforce. This category encompasses a number of different possibilities characterized by overly long claims with too many and very specific elements, and/or claims that are very convoluted and ambiguous. A hypothetical example would be a wine with exact 12.5 % Vol. Ethanol content during its shelf life. Because of the continuous fermentation in the bottle, the alcohol levels will change over time and therefore the narrowness of the limitation would make a patent unenforceable.