

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

In re *Inter Partes* Review of:
U.S. Patent No. 8,230,099

For: SYSTEM AND METHOD FOR
SHARING PLAYLISTS

DECLARATION OF KEVIN C. ALMEROOTH, PH.D.

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
US Patent and Trademark Office
PO Box 1450
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I, Kevin C. Almeroth, hereby declare and state as follows:

1. I have been retained as a technical consultant on behalf of Samsung Electronics Co., Ltd., the petitioner in the present proceeding, and I am being compensated at my usual and customary hourly rate. The petition names Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC as real parties-in-interest. I have no financial interest in, or affiliation with, the petitioner, real parties-in-interest, or the patent owner, which I understand to be BLACK HILLS MEDIA, LLC. My compensation is not dependent upon the outcome of, or my testimony in, the present *inter partes* review or any litigation proceedings.

2. I have reviewed each of the following:

- a. U.S. Patent No. 8,230,099 (“the ’099 Patent”), including the claims, description and prosecution history (which is identified in the Petition respectively as Exhibits 1001 and 1002);
- b. U.S. Patent Application Publication No. 2002/0087996 to Bi *et al* (which is identified in the Petition as Exhibit 1003; hereinafter “Bi”);
- c. U.S. Patent Application Publication No. 2002/0072817 to Champion (which is identified in the Petition as Exhibit 1004; hereinafter “Champion”);
- d. U.S. Patent No. 7,668,939 to Encarnacion (which is identified in the Petition as Exhibit 1005; hereinafter “Encarnacion”);

3. Upon reviewing the ’099 Patent, I understand that a non-provisional application was filed on May 2, 2008 (Appl. No. 12/114,286) as a divisional of Application No. 10/840,110, filed on May 5, 2004. For the purposes of my analysis, I assume the time of the purported invention to be May 2003.

4. It is my opinion that a person of ordinary skill in the art at the time of the inventions claimed in the ’099 Patent would have at least a B.S. degree in electrical engineering, computer engineering or computer science and approximately two years of professional experience with computer

networking and multimedia technologies, or the equivalent. I was a person of skill in this art in May, 2003.

Professional Qualifications and Background

5. My background, qualifications, and experience relevant to the issues in proceeding are summarized below. My *curriculum vitae* is attached herewith and identified in the petition as Exhibit 1007.
6. I am currently a Professor in the Department of Computer Science at the University of California, Santa Barbara. At UCSB, I also hold faculty appointments and am a founding member of the Computer Engineering (CE) Program, Media Arts and Technology (MAT) Program, and the Technology Management Program (TMP). I have been a faculty member at UCSB since July 1997.
7. I hold three degrees from the Georgia Institute of Technology: (1) a Bachelor of Science degree in Information and Computer Science (with minors in Economics, Technical Communication, and American Literature) earned in June, 1992; (2) a Master of Science degree in Computer Science (with specialization in Networking and Systems) earned in June, 1994; and (3) a Doctor of Philosophy (Ph.D.) degree in Computer Science (Dissertation Title: Networking and System Support for the Efficient, Scalable Delivery of

Services in Interactive Multimedia System, minor in Telecommunications Public Policy) earned in June, 1997.

8. One of the major concentrations of my research to date has been the delivery of multimedia content and data between computing devices. In my research, I have studied large-scale content delivery systems, and the use of servers located in a variety of geographic locations to provide scalable delivery to hundreds, even thousands of users simultaneously. I have also studied smaller-scale content delivery systems in which content is exchanged between individual computers and portable devices. My work has emphasized the exchange of content more efficiently across computer networks, including the scalable delivery of content to many users, mobile computing, satellite networking, delivering content to mobile devices, and network support for data delivery in wireless networks.
9. In 1992, at the time I started graduate school, my research focused initially on interactive functions (e.g., VCR-style functions like pause, rewind, and fast-forward) for near video-on-demand systems in cable systems. This included handling multiple requests using one audio/video stream broadcast to multiple receivers simultaneously. This research has developed into new techniques to deliver on-demand content, including audio, video, web documents, and other

types of data, through the Internet and over other types of networks, in a way that scales to a large number of users.

10. In 1994, I began to research issues associated with the development and deployment of multicast in the Internet. Multicast allows scalable transmission from a single source to an arbitrary number of receivers. Some of my more recent research endeavors have looked at how to use the scalability offered by multicast to provide streaming media support for complex applications like distance learning, distributed collaboration, distributed games, and large-scale wireless communication.
11. Starting in 1997, I worked on a project called the Interactive Multimedia Jukebox ("IMJ") to integrate the streaming media capabilities of the Internet together with the interactivity of the web. Users could select content to view from a website, which would then be scheduled for delivery using multicast on one of a number of logical content streams. Delivery would be scheduled according to available communication capacity: if idle capacity existed when a request was made, the requesting user would be able to watch its selection immediately. If the server was fully utilized in streaming previously selected content, the user's selection would be queued. In the meantime, the user would see what content was already playing, and because of the use of multicast, would be able to join one of the existing streams and watch the

content at the point it was currently being transmitted. This service combined the interactivity of the web with the streaming capabilities of the Internet to create a jukebox-like service. As part of the project, we obtained permission from Turner Broadcasting to transmit cartoons and other short-subject content.

12. Starting in 1997, I began researching issues related to wireless devices. In particular, I was interested in showing how to provide greater communication capability to the wireless devices of the time, which tended to be resource-constrained (e.g., in terms of CPU, memory, networking, and power). Starting in 1998, I published several papers on my work to develop a flexible, lightweight, battery-aware network protocol stack, which were similar in nature to protocols like UPnP (discussed below at ¶¶ 21 - 31). From this initial work, I have made wireless networking and wireless devices one of the major themes of my research. These topics include developing applications for mobile devices, for example, virally exchanging and tracking “coupons” through “opportunistic contact”; building network communication among a set of mobile devices unaided by any other kind of network infrastructure; and dynamically detecting weaknesses in the protocol operation of wireless network traffic to evaluate alternative solutions.
13. In the course of my research, I have been involved in the development of academic research into available technology in the marketplace. One aspect

of this work is my involvement in the Internet Engineering Task Force (IETF), including many content delivery-related working groups like the Audio Video Transport (AVT) group, the MBone Deployment (MBONED) group, the Source Specific Multicast (SSM) group, the Inter-Domain Multicast Routing (IDMR) group, the Reliable Multicast Transport (RMT) group, the Protocol Independent Multicast (PIM) group, etc. I have also served as a member of the Multicast Directorate (MADDOGS), which oversaw the standardization of all things related to multicast in the IETF. Finally, I was the Chair of the Internet2 Multicast Working Group for seven years.

14. I am an author or co-author of nearly 200 technical papers, published software systems, IETF Internet Drafts, and IETF Request for Comments (RFCs). The titles and subject matter of these technical papers are listed in full on my CV, which is identified in the petition as Exhibit 1007. Furthermore, in the courses I teach at UCSB, a significant portion of my curriculum covers aspects of the Internet and network communication including the physical and data link layers of the Open System Interconnect (OSI) protocol stack, and standardized protocols for communicating across a variety of physical media such as cable systems, telephone lines, wireless, and high-speed Local Area Networks (LANs). The courses I have taught also cover most major topics in Internet

communication, including data communication, multimedia encoding, and (mobile) application design. For a complete list of courses I have taught, see my *curriculum vitae*, Exhibit 1007.

State of the Art Through May 2004

15. One of the most widely deployed computer networks, i.e., physical connections of computers to exchange data, is the Internet. The Internet has been around for several decades, with many tracing its origins to the ARPAnet in the late 1960s. While the origins of the Internet were humble, it has grown into a massive, highly sophisticated network for highly complex and highly varied forms of communication. Originally useful mainly for the exchange of text documents through email or file exchange, the Internet has evolved to support more complex data transactions including multiple media types (e.g., pictures, audio, video), hence the concept of “multimedia.” Coupled with new and improved delivery capabilities and increased ways of offering information to users, the ways in which the Internet could be used increased dramatically during the 1990s. These factors led to numerous technical innovations in the way data was made available to users.
16. Much of the communication in networks takes place using a “client/server” paradigm, where content servers hold information desired by users. Through their clients, users make requests for this information, and the server responds

by providing the requested information. Such a paradigm is used in, for example, the World Wide Web (WWW). In other applications, like email, servers are responsible for accepting, storing, and forwarding email.

17. One approach to developing advancements in the services provided by servers to clients—particularly with respect to personal computers—has been to mimic and improve on existing, non-computer based services. It was a well-established goal at least as early as the latter half of the 1990s to have computers provide the kinds of consumer-facing services that were previously available in only orthogonal, monolithic technology domains, such as television, radio, telephony, shopping, and gaming. With the power of the Internet, video programming could be enhanced with web-style interactivity; desired content could be watched on-demand instead of according to a static schedule; games could be played with multiple, remote users; “radio stations” could be custom built based on individual user preferences; and shopping experiences could be developed that offered advantages beyond what could be found by visiting a store.

18. One particular environment that received significant attention was the home. Home-based computing and home-based networking provided rich opportunities for technology development and product sales. This environment was further amplified by the increased availability and use of

network-capable mobile devices (e.g., laptops, PDAs, mobile phones). Within this area, a particular focus was on the development of various standards that would permit consumers to share media content freely among devices within a network.

19. At the same time that laptop computer and PDA devices were reaching mainstream adoption in the late 1990s and early 2000s, the industry was in parallel implementing the same and more features of those devices into cellular phones. Further, the lines between laptop computers, PDAs, and cellular phones were blurred given the availability of peripherals for connecting laptop computers and PDAs to cellular voice and data networks, and the increasing processing and memory capabilities of cellular phones. By the late 1990s and early 2000s, several companies released cellular phones with wireless-Internet capability and phones began to appear on the market that had the ability to play media files in either Windows Media or MP3 format, including files with extensions .asf, .wma, .wmv, and .mp3. By at least 2003, the industry was well aware of building into cellular phones the features used in laptop computers and PDA devices.
20. The increasing popularity of digital media and potential of streaming platforms led many major manufacturers in the early 2000s to develop wireless set-top boxes and/or music servers that could stream video to a TV or

audio to a stereo system from various computing devices. These devices bridged the gap between computers and the home entertainment system, and generally allowed consumers to play media from a desktop computer, personal device, or Internet streaming source to their TVs and stereo systems. Wireless set-top boxes or music servers (and applications for these devices) were developed in the early 2000s by Intel, Philips, Slim Devices, PRISMIQ, Oregan Networks, and Mediabolic, among others.

21. To facilitate the integration of network-connected devices, Microsoft introduced an initiative called Universal Plug and Play (“UPnP”) at the Consumer Electronics Show in January of 1999. The initiative was originally supported by companies such as Microsoft, Intel, Hewlett-Packard, Compaq, Dell, and many others. The members of the UPnP Forum defined and published device descriptions for the participants in a UPnP network to create standard building blocks for home networking.
22. By December 2001, the UPnP Forum included more than 350 member companies from many industries, including consumer electronics, home automation and security, computers and peripherals, networking, appliances, semiconductors and others. The first UPnP device standard was published in November 2001, and the first UPnP-enabled devices shipped in December

2001. An early UPnP timeline is reproduced below:

Table 1.1 UPnP Timeline

Date	Event
1/99	UPnP standard publicly announced
10/99	UPnP Forum officially formed
6/00	UPnP version 1 architecture finalized
6/00	Microsoft Windows [®] ME with UPnP version 1 support ships
7/00	Intel's open source UPnP SDK released
5/01	UPnP version 1 toolkits announced
10/01	Microsoft Windows XP with UPnP version 1 support ships
11/01	First UPnP device standard published
12/01	First UPnP-enabled devices ship
1/02	Microsoft Windows CE with UPnP version 1 support ships

23. The UPnP forum finalized the UPnP Device Architecture, Version 1.0 specification in June of 2000. The UPnP Device Architecture defines the protocols for communication between UPnP control points and devices according to six well-defined phases:

Addressing, by which devices obtain an IP address;

Discovery, by which control points become aware of the existence of devices;

Description, by which control points learn details about devices and their services;

Control, in which control points invoke service actions;

Eventing, by which devices notify control points of changes in state; and

Presentation, by which devices can present web pages to control points

allowing for status and control interactions.

The UPnP Device Architecture describes a networking architecture enabling peer-to-peer network connectivity of intelligent appliances, wireless devices, personal computers and other devices with communication capabilities.

24. With regard to device discovery, the UPnP Device Architecture teaches that after a control point has discovered a device, it uses an HTTP URL contained in the discovery message to request a UPnP description from the device, which may include vendor-specific information such as the model name and number, serial number, and manufacturer name. After obtaining knowledge of a device and its services, a control point can then ask those services to invoke actions.
25. The June 2000 UPnP Device Architecture could be implemented in a number of use cases, including by deploying UPnP to enable users to store, play and view audio and video content across a range of consumer electronics devices. For example, at least by December 2001, UPnP had defined the following multimedia use-case: “While checking her e-mail, Paula learns that a new recording by her favorite artist is available. Paula visits the recording label’s Web site, purchases a copy of one of the songs and initiates a download of the song to her new audio player in the family room. Later that night Paula decides to listen to the song on her home entertainment system. Using her

remote control, she selects the new recording from her audio player and plays it on her stereo.” *See* Ex. 1008, Miller *et al.*, “Home Networking with Universal Plug and Play” (IEEE, Dec. 2001).

26. Likewise, more specific use-case scenarios were developed for UPnP to stream multimedia between connected UPnP-compliant devices. For example:

Watching a Movie

Arriving home after a long day at work, George decides to watch a movie. He happens to be in the kitchen getting a glass of juice from the fridge, so he calls up a list of recent movies on the screen near to him on the kitchen counter. George checks out some previews and then selects the movie to watch. The movie selection program turns on the home theater system and automatically starts the movie. The controlling program also dims the lights and adjusts the volume of the speakers. Settling in, George watches the movie for a while. Twenty minutes later, an alert pops up on the home theater screen indicating activity in the front yard. George puts the porch camera on the screen and sees the local pizza delivery man walking up the path to his door, delivering the pizza ordered earlier. George meets the delivery man at the door, takes the pizza, pays him, including a generous tip, and returns to the home theater room. Some time after the delivery man leaves, the kitchen lights and porch lights turn themselves off to conserve energy, having not detected any motion.

See Ex. 1009, Michael Jeronimo & Jack Weast, UPnP Design By Example, Intel Press (Apr. 2003).

27. By June 26, 2002, UPnP had released version 1.0 of its standardized device control protocol specifications (collectively, “UPnP Version 1.0”), and published them on its public website (<http://www.upnp.org>). The standardized device control protocol specifications included a standardization for devices including a “media renderer” and “media server,” as well as a

standardization document “UPnP AV Architecture:1” that defines the general interaction between UPnP control points and UPnP AV devices, and was designed to support devices such as PCs, TVs, PDAs, CD/DVD players, jukeboxes, set-top boxes, stereo systems, MP3 players, cameras and camcorders. *See* Ex. 1010, UPnP AV Architecture:1 For Universal Plug and Play Version 1.0, Status: Approved Design Document, Date: June 25, 2002.

28. The UPnP control point lies at the center of the UPnP AV 1.0 architecture.

UPnP control points control the operation of the media servers and media renderers, and typically perform some variation of the following operations:

Locate the existing media server and media renderer devices in the network, i.e., discovery.

Enumerate the available content for the user to choose from, i.e., content enumeration.

Query the server and renderer to find a common transfer protocol and content format for the selected content, i.e., protocol/format negotiation.

Configure the server and renderer with the desired content and selected protocol/format, i.e., server/renderer setup.

Initiate the transfer of the content according to the desires of the users, such as play, pause, and seek, i.e., control content flow.

Adjust the rendering characteristics such as volume, brightness, and so forth, i.e., control rendering characteristics.

29. UPnP was implemented in consumer devices starting at least as early as 2002.

By September 2002, Intel Corp. announced the “Extended Wireless PC Initiative,” which was focused on providing UPnP-based technology to developers, “allowing them to distribute PC digital media to TVs and stereos throughout the consumer’s home.” *See* Ex. 1011, “TV Meets the Web” (Financial Times, Sept. 10, 2002). “Critical to media distribution is a new PC peripheral called a digital media adaptor, which creates a link between PCs, TVs and stereos. It can receive digital media from the PC using 802.11 wireless networking (WiFi) and UPnP technologies, and can connect to TVs and stereos using standard A/V cables — much like a DVD player.” *Id.* “Intel’s spec adds in UPnP, to let these devices auto-configure to recognize and seamlessly interoperate with other UPnP devices on the home network.” *See* Ex. 1012, “Intel Pushes Plug and Play Into Homes” (Extremetech.com, Sept. 10, 2002).

30. By January 2003, Mediabolic, Inc. announced that it would incorporate UPnP support and pursue UPnP compliance testing for its Mediabolic ONE platform, a middleware solution used in digital entertainment devices: “The Mediabolic ONE platform enables manufacturers to create new digital

entertainment devices with optional networking capabilities that extend digital media entertainment to multiple consumer devices and PCs around the home. UPnP technology is an industry standard for interoperability of digital devices on a home network and is an essential ingredient in ensuring that Mediabolic-enabled products are interoperable with the growing number of digital devices that use the technology to discover and share content and services. . . . The Mediabolic ONE platform and UPnP technology enable a world in which music and other digital entertainment content can be accessed from various devices in the home without regard for where the media is stored. Digital devices based on the Mediabolic ONE platform and UPnP technologies will be able to access digital content located on UPnP-enabled PCs, for example, allowing consumers to play video clips or view family photos on the TV, or listen to digital music on the home stereo.” *See* Ex. 1013, “Mediabolic Incorporates Support for UPnP Technology into the Mediabolic ONE Platform” (Business Wire, Jan. 6, 2003).

31. By February 2003, Oregan Networks developed and demonstrated a UPnP-enabled DVD platform “capable of streaming media content and services from a PC.” *See* Ex. 1014, “Oregan Networks Demonstrates UPnP Enabled” (PR Newswire, Feb. 18, 2003). The UPnP-enabled DVD platform was designed to “allow consumers to use their televisions to view photos and movie videos

stored on their PC, or play MP3 files through DVD audio systems. All content is discovered automatically, and offered through a series of intuitive menus on the TV.” *Id.* “Regardless of whether the content is stored on an UPnP enabled PC, PVR, or MP3 player, the technology permits remote access, presentation and control of that content from any other UPnP supporting device within the home.” *Id.*

Overview of the '099 Patent

32. The '099 patent is directed to a method for presenting a playlist, *e.g.*, a playlist of songs, on a wireless handheld remote control and enabling a user to select an item on the wireless handled remote control for playback on a media player device which is associated with, but separate from, the remote control.
33. The above description is borne out in Figures 1 and 2, which are representative of embodiments of the '099 Patent. As shown in Figure 1, a playlist is communicated from a server 11 to a dedicated media player 17 via the Internet 12. '099 Patent, 8:21-67. Alternatively, as shown in Figure 2, the playlist can be communicated from the server 11 via the Internet 12 to a remote control 18, rather than being communicated directly to media player 17. *Id.* at 9:1-8. Playlists that were communicated to the media player 17 can be further communicated to the remote control 18, and vice versa. *Id.* at 9:9-23. After a playlist has been communicated to the remote control 18, the

playlist may be displayed on the remote control and the user can use the remote control to choose a media item, or selection, for playback on the media player. *Id.* at 9:5-8.

Claim Construction

34. I have been asked to offer my opinion regarding the understanding of a person skilled in the art regarding certain claim terms in the '099 Patent. I understand that in the present proceeding, claim terms are interpreted as the broadest reasonable construction consistent with the specification or "BRC."
35. I have been asked to offer my opinion regarding the understanding of a person skilled in the art regarding the claim term "playlist," which appears in each of independent claims 1, 10, 11, and 12. The specification indicates in the "Background of the Invention" section that "[a] playlist is a list of a user's favorite selections." '099 Patent, 1:33-34. The specification uses broad language to describe playlists as containing media such as music and movies. *See, e.g., id.* at 1:33 ("Playlists for music and movies are well known.").
36. In my opinion, one skilled in the art would not understand the BRC of the term "playlist" as requiring that media items be played in a sequence. While the specification notes that "the playlist *may be* compiled in an order in which the playing of selections therefrom is desired," this is optional. '099 Patent, 1:49-51 (emphasis added). The specification makes clear that the user may

also “select items to be played from the playlist.” *Id.* at 1:37-39. Indeed, independent claims 1, 10, 11, and 12 of the ’099 patent each recite “select[ing] at least one item from the playlist for playback by [a/the] media player device.” The specification and claims thus describe playing songs selected from a playlist, rather than playing all of the songs on a playlist. This is contrary to the concept that the playlist be arranged to be played in a sequence. The specification also explicitly states that “selections may also be played randomly from a playlist.” *Id.* at 1:52-53. The patent therefore does not indicate that the sequence of items in a playlist requires that the media items be played in that order. Rather, one skilled in the art would understand that “playlist” includes within its scope content that may or may not be arranged to play in a particular sequence.

37. Based on this disclosure one of skill in the art would understand the BRC of “playlist” to be “a list of media selections.”

38. I have also been asked to offer my opinion regarding the understanding of a person skilled in the art regarding the claim term “media player device,” which appears in each of independent claims 1, 10, 11, and 12. First, the specification recites that “[p]layer devices include music players, video players, and remote controls for music players and video players.” ’099 Patent, 2:66-67. The specification then enumerates a long list of exemplary

“player devices,” including, for example, MP3 players, set top boxes, and televisions. *See id.* at 2:67-3:6. Thus, one of skill in the art would understand “player devices” to be capable of playing audio or video or a combination of both.

39. The specification then discusses two kinds of media players. The specification first discloses a “dedicated media player” which the specification defines as “a media player other than a general purpose computer.” ’099 Patent, 2:49-50. Second, the specification recites an alternative embodiment where “[a]ccording to another aspect of the present invention, the media player 17 may be a general purpose computer...” *Id.* at 8:61-63.
40. In my opinion, one skilled in the art would not understand the BRC of the term “media player device” as excluding general purpose computers. While the specification references a “dedicated media player” this phrase does not appear in the claims. Instead, the claims simply recite a “media player device.” One skilled in the art would understand that the patentee chose to claim the alternative embodiment of media player, including general purpose computers.
41. Based on this disclosure one of skill in the art would understand the BRC of “media player device” to be “a device capable of playing audio or video or a combination of both.”

The Bi Publication

42. U.S. Patent Application Publication No. 2002/0087996 A1 to Bi *et al.* (“Bi”) was published on July 4, 2002. Bi is entitled “Interactive Remote Control of Audio or Video Playback and Selection.” Ex. 1003. It is directed to a system with an interactive remote control, which may be wired or wireless, that is used to control a player application running on a personal computer or set-top box. *Id.* at [0007]; [0018].
43. An exemplary embodiment of the system described in Bi is shown in Figure 2. In this system, digital audio or video data is provided from a data server 102 via the Internet or other computer network 101 to a computing platform 100. *Id.* at [0020]. Computing platform 100 may be a personal computer, set-top box or Internet appliance. *Id.* at [0018]. An “interactive remote control device,” referred to as a “navigator” 260, is provided to facilitate selection of audio or video to be played on computing platform 100. As noted at [0007], the interactive remote control provides various functions “such as playback of current digital or audio video content; selection of new audio or video content; and providing lists of content for playback.” Furthermore, an “important aspect” of the system disclosed in Bi “is that the digital content can be controlled from a location away from the computing platform running the digital content playback application.” *Id.*

44. The navigator 260 acts as a remote control and allows the user to receive feedback from and provide input to an audio or video player application 151 running on the computing platform 100. *Id.* at [0028]. It is noted that the communication with the computing platform may be wireless, *e.g.*, by an IEEE 802.11 interface. *Id.* at [0020]. One of skill in the art understands that IEEE 802.11 refers to a wireless networking standard colloquially known as “Wi-Fi.”
45. The navigator 260 includes an LCD display 266, which may be configured to display outputs such as graphics or text. *Id.* at [0018]. The navigator 260 also includes user controls 264 for controlling the audio or video player application running on computer platform 100. *Id.* at [0018]. These controls can include, for example, “buttons, dials, a touch screen, and a keyboard.” *Id.*
46. The navigator 260 interacts with a navigator control manager 154, running on the computing platform 100. Navigator control manager 154 takes user inputs from the navigator 260 and interprets and translates them into commands and actions for the audio or video player application 151 to provide interactive remote control specifically for selection and playing of digital music. *Id.* at [0031]. FIG. 7 provides the software flow of the navigator control manager 154. As can be seen in that figure, the remote control functionality includes browsing music by reference to playlists. Specifically, steps 188-193 relate to

browsing and selection of music utilizing the navigator 260. These steps include browsing music on the computing platform 100 as well as obtaining music information from data server 102 in case the music is not stored locally on computing platform 100. It is noted that “[t]ypically, a browse of music is based on such criteria as music track, album, artist, music genre, and playlists.” *Id.* at [0032].

47. It is my opinion that a person of ordinary skill in the art would understand that the disclosure of displaying “user outputs” on the navigator in Bi to include displaying the results of the “browse of music,” including playlists. This is supported not only by the presence of the LCD display on the navigator, but also by the title of the Bi Publication which recites “Interactive Remote Control of Audio or Video Playback and Selection” and by paragraph [0007] which discloses that the interactive remote control provides for “selection of new audio or video content; and providing lists of content for playback.” One of skill in the art would understand that to “select” an new audio or video item for playback, the “list of content for playback” is displayed on the LCD display.

48. Furthermore it is my opinion that one of skill in the art would understand the disclosure of “user inputs” on the navigator in Bi to include selecting an item for playback. As discussed in paragraphs [0018] and [0038], the navigator can

contains buttons, dials, a touch screen, and a keyboard. Furthermore, the title of the Bi Publication is “Interactive Remote Control of Audio or Video Playback and Selection” and paragraph [0007] discloses that the interactive remote control provides for various functions, including “playback of current digital or audio video content; selection of new audio or video content; and providing lists of content for playback.” One of skill in the art would understand that the user of navigator 260 can readily use these buttons, dials or touch screen to accomplish the recited “selection” functionality.

The Champion Publication

49. U.S. Patent Application Publication No. 2002/0072817 A1 to Champion (“Champion”) was published on June 13, 2002. Champion is entitled “System and Method for Request, Delivery and Use of Multimedia Files for Audiovisual Entertainment in the Home Environment.” Ex. 1004. It is directed to a system and method for using a remote control to control the playing of audiovisual programming on a computer or set-top box.
50. An exemplary system is shown in Figure 1. The system includes a computer 102 which can download audiovisual files and access streaming content via the Internet. *Id.* at [0030]. Alternately, computer 102 may be any device capable of supplying audiovisual outputs, such as a VCR, DVD player, cable or satellite television, or other set-top box. *Id.* at [0067]. The computer is

connected to speakers and/or a monitor for playing the audiovisual content via a digital connection 106. *Id.* at [0031]-[0036]; [0062]-[0063]. The system also includes a remote control 105 which communicates wirelessly with computer 102 via a transceiver 104. *Id.* at [0039]. The remote control is used to control the audiovisual programming output by the computer 104 to the speakers and/or monitor. *Id.* at [0040].

51. The remote control itself is depicted in more detail in Figure 3. As shown in Figure 3, remote control 105 has a display device (such as an LCD) to display information received from computer 102, including a list of available audiovisual files and/or streams from the Internet. *Id.* at [0042]. The remote control also includes controls to allow the user to move through the listing of available files and streams and controls to allow the user to select a file or stream to be played. *Id.* at [0043].

The Encarnacion Patent

52. On February 23, 2010, the USPTO issued U.S. Patent No. 7,668,939, entitled “Routing of Resource Information in a Network,” which names Mark J. Encarnacion, Jason Flaks, and Jai Srinivasan as the inventors (“Encarnacion”). Ex. 1005. The application that led to U.S. Patent No. 7,668,939 was filed on December 19, 2003. Encarnacion is directed to the operation of a UPnP

network configured to allow media from a server to be played on a renderer device. *See, e.g., id.* at 1:20-24; 3:4-16; 14:31-47.

53. The UPnP network of Encarnacion includes: a “control point” device configured to control other devices on the network, a “media rendering device,” which can play media, and a “media server,” which stores media for transmission to other devices on-demand. *Id.* at 7:65-8:28. As described above in the background of UPnP, each of the three categories of devices disclosed in Encarnacion correspond to devices that could be used in a home network for media playback. A “control point” can be a device, such as a personal digital assistant, that includes functionality to both receive information about other devices on the UPnP network and to issue commands to those devices. *Id.* at 2:25-67; 8:21-24. A “media rendering device” could include a “stereo system, speakers, TVs, hand-held audio players, and so on.” *Id.* at 8:6-8. Lastly, a “media server” can be “a personal computer that stores a collection of music, video, pictures, etc., or may comprise various types of jukebox devices.” *Id.* at 3:9-12; 5:25-26. A media server includes a resource store that contains media content made available for presentation at media renderers in the UPnP network. Media is identified using “resource locators,” which allow devices on the network to identify the location of the media.

54. Encarnacion describes one key use case where a user of a control point submits a “browse” request to the media server for available media resources matching certain criteria. *Id.* at 7:15-26; 25:13-43. After the user submits a browse request, the media server scans its resource store for matching content and returns a set of resource locators that identify media responsive to the request. *Id.* at 12:38-61; 13:1-14; 14:8-19. A “resource locator” can refer to various kinds of media that can be identified on the network, including an individual song or a collection of songs, such as an album or playlist of songs. *See, e.g., id.* at 13:62-14:7; 14:8-30; 21:48-50; 25:39-43. The control point then translates this response into a presentation format and displays a list of matching resources for the user’s review. *Id.* at 25:44-50. The user of the control point then selects one of the resource identifiers, which will cause the control point to issue a control command to a selected media rendering device, causing the media rendering device to then request the identified resource from the media server. *See, e.g., id.* at 14:31-47. The requested resource is then provided to the media rendering device, which plays back the media. *Id.* at 14:53-55.

The Combination of Bi, Champion and Encarnacion

55. Bi, Champion and Encarnacion are all directed to using handheld devices to control the playing of media items on media player devices. Bi discloses using

a handheld navigator to browse listings of available media items from a remote source and to select an item to be played on a separate computing platform. Similarly, Champion discloses using a handheld remote control to browse listings of available media items from an audio/visual server or the Internet and to select an item to be played on a media player device. Likewise, Encarnacion discloses that a control point, such as a PDA, can browse listings of available media items on a media server, including playlists, and select an item from a list to be played on a separate media rendering device. As such, one of skill in the art would readily combine the features of Bi, Champion and Encarnacion.

56. It is my opinion that, based on the physical capabilities of a remote control with a display and buttons, one of skill in the art would understand that a playlist received on such a remote control is displayed on the built-in display in order to enable the user to view the media items and to select an item to be played on the media player device. For instance, in order to enable a user to select an item from a playlist on a remote with a display, such as the navigator in Bi, a person of skill in the art would implement a user interface to display the items in the playlist, such as that shown in Figure 3 of Champion. Displaying the received playlist on any other device would be inefficient and would require additional measures, such as retransmission of the playlist,

especially when the remote control has the necessary physical capabilities to display the playlist itself.

57. It is my opinion that one skilled in the art would have combined the features of these three references because the navigator disclosed in Bi, the remote control in Champion, and the control point in Encarnacion could all substituted for each other with predictable results. For instance, the navigator disclosed in Bi and the remote control in Champion could each be used as a control point in the Encarnacion system. Both the navigator in Bi and the remote control in Champion have all of the required functionality for a control point in Encarnacion, namely the ability to connect to a network to communicate with other devices, a display for browsing media items available on the network, and buttons to allow for user input and selection of media items. Additionally, one of skill in the art would recognize that the remote control in Champion could be substituted for the navigator in Bi because the remote control can wirelessly communicate with a computing platform, display the results of the browse command and allow the user to select an item for playback on the computing platform.

58. One of skill in the art would also recognize that the protocols for communicating playlists between the media server and the control point disclosed in Encarnacion could be used for the communication between the

computing platform and navigator in the Bi system or the communication between the computer and remote control in the Champion system. A person of ordinary skill in the art who wanted to implement the system disclosed in Bi or Champion would readily look to industry standards, such as UPnP to assist in the implementation. This would allow the person of skill in the art to save time and effort in the implementation and may also allow a device to be interoperable with other devices based on the same standard. In particular, a person of skill in the art attempting to implement the system in Bi or Champion would look to the UPnP standard and the Encarnacion patent since the UPnP standard was a widely supported industry standard for media sharing on a network. *See* ¶¶ 21 - 31, above. Encarnacion is an implementation of the UPnP standard which is directed to the same purpose as Bi and Champion, namely the browsing of available content and selecting media items for playback on another device. For example, to implement the “browse” command in Bi a person of ordinary skill in the art would look to Encarnacion because it discloses how to implement a “Browse” command in UPnP. Namely, Encarnacion discloses that a media server responding to a “Browse” command sent by a control point sends an XML file to the control point. Furthermore, Encarnacion discloses that this XML file can contain “resource containers” such as playlists. In the same manner, a person of

ordinary skill in the art would have reason to use the Encarnacion protocols with the Champion system. As stated above, a person of skill in the art would look to the UPnP standard for ease of implementation and potential interoperability benefits and Encarnacion discloses an XML-based protocol to communicate listings of available media items on a server. Such an XML-based protocol could readily be used to implement the listing of available audio or audiovisual programs in Champion.

59. Thus, the combination the systems of Bi, Champion, and Encarnacion, or the components thereof, would merely yield predictable results from the combination of known prior art devices and methods.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code.

Dated: 21-Apr-2014

Respectfully submitted,

By Kevin C Almeroth
Kevin C. Almeroth.