

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC.,
Petitioner,

v.

AVAGO TECHNOLOGIES INTERNATIONAL SALES PTE. LIMITED,
Patent Owner.

IPR2021-00303

U.S. Patent No. 8,270,992

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,270,992

TABLE OF CONTENTS

EXHIBIT LIST	4
I. THE '992 PATENT	6
A. Overview	6
B. Priority Date	8
II. IDENTIFICATION OF CHALLENGE	9
A. Statutory Grounds.....	9
B. Relied-Upon Prior Art	9
1. Barnes (Ex. 1004)	9
2. Shaw (Ex. 1005).....	14
C. Standing.....	16
D. Discretionary Analysis for Review	16
III. LEVEL OF ORDINARY SKILL	19
IV. CLAIM CONSTRUCTION	20
A. “A Portable System”	20
V. CHALLENGED CLAIMS	21
A. Ground 1: Claims 1-14 and 16-19 Are Obvious Based on Barnes in View of Shaw	21
1. Independent Claims 1, 6	24
2. Independent Claims 11, 16	42
3. Dependent Claims 2, 7, 12, 17	57
4. Dependent Claims 3, 8, 13, 18.....	59
5. Dependent Claims 4, 9	61

6. Dependent Claims 5, 10.....	65
VI. CONCLUSION.....	66
VII. MANDATORY NOTICES AND FEES	67
CLAIM APPENDIX.....	69

EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 8,270,992 (“the ‘992 patent”)
1002	Prosecution File History for the ’992 patent
1003	Declaration of Harley R. Myler, Ph. D., P.E.
1004	U.S. Patent Publication No. 2003/0065805 to Barnes (“Barnes”)
1005	U.S. Patent No. 7,299,291 to Shaw (“Shaw”)
1006	Real Time Streaming Protocol (RTSP), RFC2326, IETF 1998. http://www.ietf.org/rfc/rfc2326.txt .
1007	<i>Broadcom Corp. v. Netflix, Inc.</i> , Case No.: 3:20-cv-04677-JD, DI 90 (N.D. Cal.) (Sept. 24, 2020) (“Broadcom Opposition”)
1008	U.S. Patent Appl. Pub. No. 2001/0025378 to Sakamoto et al.
1009	PCT Appl. Pub. No. WO 00/16550 to Gomez et al.

Petitioner Netflix, Inc. requests that the Board institute inter partes review and cancel claims 1-14 and 16-19 of U.S. Patent 8,270,992 (the '992 patent). The '992 patent claims a portable system and method for providing a digital media service to a user. The claims require that the portable device deliver digital media content to a user at a certain quality level. Next, the portable system determines that a network connection with a second system is available and capable of delivering the digital media content at a quality level higher than the current quality level. Finally, the portable system switches to using the network connection with the second system to deliver the digital media content to the user.

These basic steps would have been obvious to a person of ordinary skill familiar with digital media streaming technology in 2003, when the '992 patent was filed. Barnes patent application in 2002 teaches a portable system that includes a media player that is used to stream audio or video. Shaw's patent application filed in 2001 teaches improving a media player to periodically determine whether there is a better source for the current stream and switches to the better stream "on the fly" to enhance the quality of service. A person of ordinary skill would have found that challenged claims are rendered obvious by the combination of references like Barnes and Shaw.

I. THE '992 PATENT

A. Overview

The '992 patent purports to “provide a system and method for allocating and utilizing resources in a dynamic communication network.” Ex.1001, 1:58-60.

According to the '992 patent, “[i]n a dynamic network environment,” such as in a wireless communication network, “various processing resources may freely enter and leave a network,” and these resources “may have superior or inferior service providing capabilities to other resources already present in the dynamic network.” Ex 1001, 1:35-39.

The patent provides an example of “a system providing relatively low quality audio service may enter a dynamic wireless network that includes one or more systems capable of providing a relatively high quality audio service.” *Id.*, 1:39-42. FIG. 5 “illustrates an exemplary network scenario 500 where the first system 510 comprises a personal digital assistant (‘PDA’) 515 initially providing music to a user through a headset 520 communicatively coupled to the PDA 515 through a communication link 525.” *Id.*, 3:25-30. The user and PDA may “be mobile and may move within the boundaries of a wireless communication network of which the second system 550 is a member.” *Id.*, 3:66-4:2. In the example, a second system 550 comprises a desktop computing station 555. *See id.*, FIG. 5.

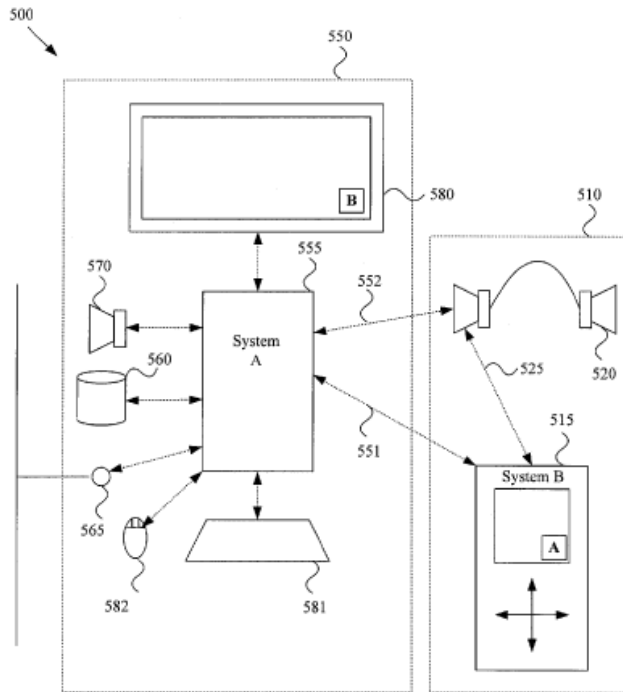


Figure 5

The PDA 515 of first system 510 and desktop computer 555 of second system 550 may “communicat[e] information between the first and second systems of whether the first or second system has processing capability, which if utilized, would result in the current service being provided to the user at a higher level of quality than the current quality level.” *See id.*, 5:3-7. Ex. 1003 ¶5.

FIG. 1 illustrates a method for using resources in a dynamic wireless network environment for providing a higher quality of service to a user. *Id.* 3:3-6. The method comprises these steps: (step 120) a first system providing a service to a user; (steps 130 through 160) determining a second system is available to provide the user a higher quality service; (steps 180–190) using the second system to provide the user a higher quality level of service.

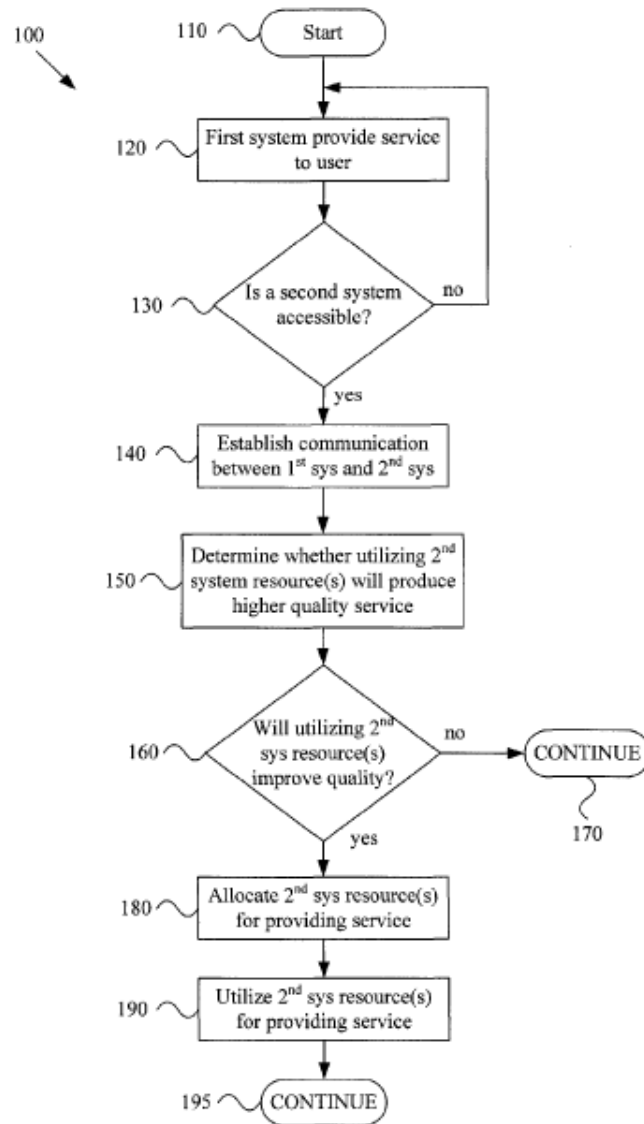


Figure 1

Ex. 1003 ¶6.

B. Priority Date

Petitioner takes no position on whether the '992 patent is entitled to claim priority to its provisional application filed on September 22, 2003. The relied upon references are prior art to the '992 patent regardless.

II. IDENTIFICATION OF CHALLENGE

A. Statutory Grounds

Petitioner requests *inter partes* review and cancelation of the challenged claims on the following grounds:

Grounds	Claims	Statutory Basis	Prior Art
1	1-14 and 16-19	§ 103	Barnes and Shaw

Neither Barnes nor Shaw were cited or considered during prosecution of the '992 patent. *First*, neither reference or any related patents are listed on the face of the '992 patent. In addition, Petitioner is unaware of either reference being discussed in the prosecution history. Ex. 1002; Ex. 1003 ¶17. *Second*, a POSITA would have understood that Barnes and Shaw are different from the references addressed during the prosecution of the '992 patent, which is described below the Discretionary Analysis for Review. *See, supra* §II.D.

B. Relied-Upon Prior Art¹

1. Barnes (Ex. 1004)

Patent Application Publication No. 2003/0065805 to Barnes is prior art under pre-AIA 35 U.S.C. § 102(a) because it published on April 3, 2003, which is before the earliest claimed priority date of the '992 patent (September 22, 2003), and is prior art under pre-AIA § 102(e) as of its May 23, 2002 filing.

¹ Pre-AIA 35 U.S.C. §102 applies. MPEP §2159.02.

Barnes teaches a multi-function communications device that combines the capabilities of a mobile phone and a personal digital assistant (PDA). *Id.* [0034]. The device is portable and may be handheld or worn around the neck, on the hip, or on the arm. *Id.* [0035]. The device includes a central processing unit, a processor, and memory. *Id.* The user interacts with the device through a variety of user input devices, such as a microphone (e.g., voice commands), touchpad, keyboard, buttons, or touchscreen. *Id.* [0036]. Output devices include a display (e.g., a high resolution color display with touch screen), a speaker, a headset jack, or a wireless headset. *Id.* [0037]-[0038]. FIG. 1 is a functional block diagram of Barnes' invention:

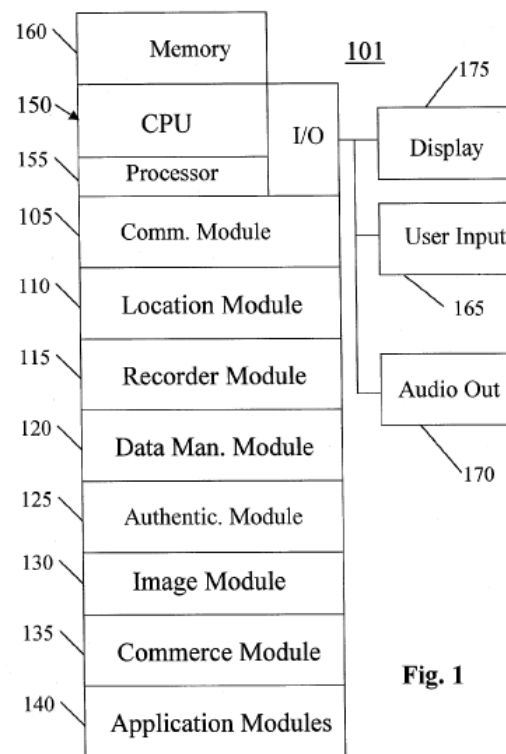


Fig. 1

Ex. 1003 ¶21.

The device is provided with applications, such as a web browser (e.g., Internet Explorer) and an audio/video player. Ex. 1004, [0039]. The audio/video player supports well-known digital video compression standards (e.g., MPEG-1, MPEG-2, and MPEG-4), competing video compression schemes (e.g., Windows® Media, Indeo®, and QuickTime®), and well-known audio/video formats (e.g., .wav, .avi, .mov, .mpeg, .mp3, .au, and aiff files). *Id.* [0040]. Barnes teaches that the audio/media player could be a “RealPlayer Media Player®.” *Id.* Ex. 1003 ¶22.

The device supports using a plurality of network connections, which allow the device to make phone calls and video phone calls, as well as receive Internet data, digital television signals, and digital radio signals. Ex. 1004, [0044], [0066]. Examples of network connections include Bluetooth®, Wi-Fi, 802.11, 3G wireless, and 2.5G wireless. *Id.* [0048], [0050-57]. For example, digital signals representing audio or video received over a wireless communication link can be processed and presented to the user by the audio/media player. *Id.* [0045]; Ex. 1003 ¶23.

Just as the '992 patent suggests redirecting music from a user's PDA headset to a better computer desktop speaker, Barnes' device “may also route certain data to remote devices during live or non-live presentation to the user” using a wireless connection in order to improve the quality of the presentation. Ex. 1004, [0069]. For example, if the user's car has a better quality display, the device may route video signals to the car's display. *See id.* [0069] (“a video transmission or

computer data (e.g., web pages) received by the device 101 may be routed (e.g., as requested by the user) to a remote display device (e.g., via a wireless PAN to a display in an automobile) that may be large or of better quality than the display of the device.”). When listening to music, the device may route audio signals to the user’s car stereo system. *See id.* Thus, the digital media content is delivered at a higher quality level to the user. Ex. 1003 ¶24.

The device is programmed with rules for selecting a network connection from a plurality of available network connections to improve performance and quality of service. The selection may be based upon the available bandwidth of each network (i.e., the amount of data that can be communicated over a given time period), the anticipated bandwidth needed, the available capacity of each network (i.e., how full to capacity a network is), the cost of each network, and other factors. Ex. 1004, [0070]-[0071]. For example, if the user chooses to watch a movie, the device may select the connection with the highest bandwidth. *Id.* [0072]; Ex. 1003 ¶25.

Barnes also explains that device 101 includes programming for switching to a communication network when, network switching conditions arise, such as:

- 1) changes in network conditions such as failure of a first network or the first network slowing down (due to high use such as multiple users

and/or high levels of data being communicated), such as below a predetermined level (e.g., threshold speed), or increases in noise,

- 2) the user making a request, or attempting to make the request, to communicate data that is more suitable for communication through a second network (e.g., the user requesting a video file or movie),
- 3) the anticipated request of the user (e.g., based on the user starting a particular application such as a video player),
- 4) changes in network availability (e.g., a new network becoming available),
- 5) changes in conditions of the second network (e.g., more bandwidth or less noise),
- 6) the available capacity or relative available capacity (e.g., how full to capacity a network is),
- 7) the communication capabilities of the device, and
- 8) the historical (or anticipated) availability of bandwidth of network(s) (which may include, for example, use, volume, capacity, and/or speed data for days of the week or times of the day).

Ex. 1004, [0074]; Ex. 1003 ¶26.

2. Shaw (Ex. 1005)

U.S. Patent No. 7,299,291 to Shaw is prior art under pre-AIA 35 U.S.C. § 102(e) because it was filed on May 17, 2001, which is before the earliest claimed priority date of the '992 patent (September 22, 2003). Ex. 1005.

Shaw is directed to a client media player and method for streaming live or recorded video and audio. Shaw explains that the important characteristic of streaming media is that the content can be played while it is still in the process of being downloaded. Ex. 1005, 1:17-19. In contrast, non-streaming media must be fully downloaded before it can be played, which may take minutes or even hours. *Id.*, 1:26-28. It was well-known to a POSITA that the quality of streaming media depends on the type of media being delivered (e.g., audio versus video), the speed of the user's Internet connection (e.g., bandwidth), network conditions (e.g., congestion and packet loss), the bit rate at which the content is encoded, and the format (e.g., RealPlayer, Windows Media, or QuickTime). *See, id.*, 1:37-40; Ex. 1003 ¶28.

Shaw teaches that the typical bandwidth constraints at the time meant that audio streaming could provide a quality of service at the level of FM quality (e.g., commercial broadcast radio), but that video streaming provided poorer quality (e.g., smaller screens, lower resolution, and fewer frames per second) as compared to TV standards (e.g., commercial broadcast TV). *See*, Ex. 1005, 1:40-44. One way

content owners sought to provide a better quality of service was to encode streaming media at multiple bit rates. By doing so, the content could be streamed to a user with a slower connection using a lower bit rate encoding, while the same content could be streamed to a user with a faster connection using a higher bit rate encoding. *Id.*, 1:54-58; Ex. 1003 ¶29.

To provide a better streaming experience, Shaw teaches a client-side method for identifying an optimum server for obtaining streaming content. The player performs a query to identify a set of servers from which the desired stream may be obtained. Ex. 1005, Abs., 3:48-58. The player may then perform one or more tests to determine which of the “servers provides a best quality of service for the stream.” *Id.*, Abs., 3:58-61. The player then uses that server to retrieve the stream. *Id.*, Abs., 3:61-62. Because the best server for a stream may change over time, the player periodically performs the same query process to determine whether there is a better source for the stream. *Id.*, 3:32-44, Abs., 3:62-66. If yes, the player switches to the better source for the stream if that will maintain or enhance the quality of service for the stream. *Id.*, Abs., 3:64-66. Thus, Shaw teaches providing media content at a higher quality level and from another source. Shaw further teaches that then existing media players, including Real Player, can be enhanced to perform its invention. *Id.*, 7:4-25; Ex. 1003 ¶30.

C. Standing

Petitioner certifies that it is not barred or estopped from requesting this *inter partes* review and that the '992 patent is eligible for IPR.

D. Discretionary Analysis for Review

The *Fintiv* factors weigh in favor of institution. The district court case is in its infancy. As of the filing of this Petition, no discovery or claim construction briefing has occurred, no trial date has been set, and a case management conference has not been held. Based on the district court's general scheduling practice, trial will be held 18 months from the case management conference. The judge presiding over the underlying district court case has also been willing to grant stays upon institution of IPR in prior cases. *See e.g., LELO, Inc. v. Standard Innovation (US) Corp.*, No. 13-CV-01393-JD (N.D. Cal. June 24, 2014); *Global Touch Solutions, LLC v. Toshiba Corp.*, No. 3:15-CV-02746 (N.D. Cal. Apr. 7, 2016); *Commvault Systems, Inc v. KOM Software Inc.*, No. 3:19-CV-05175 (N.D. Cal. Nov. 12, 2019). Furthermore, if institution is granted, Petitioner will not raise, or continue to assert, the same invalidity grounds that are included in this Petition against the challenged claims in the district court. Petitions for *inter partes* review for other patents-in-suit have also been filed, increasing the likelihood of a stay in the parallel district court case. Thus, *Fintiv* factors one (likelihood of stay), two

(trial date), three (investment in proceedings), and four (overlap of issues) all weigh in favor of institution.

Only *Fintiv* factor five weighs slightly against institution. While Petitioner and Patent Owner are the same parties as in the parallel district court case, it is “far from an unusual circumstance that a petitioner in *inter partes* review and a defendant in a parallel district court proceeding are the same.” *Sand Revolution II, LLC v. Cont’l Intermodal Grp.-Trucking LLC*, IPR2019-01393, Paper 24 (June 16, 2020) (granting institution where the parties are the same as in a parallel district court case) (informative).

This Petition is strong on the merits, showing the claims involve a combination of known elements, yielding predictable results, and provides several reasons for combining the routine teachings of the cited references. Furthermore, the petition here was filed promptly.

Additionally, Patent Owner here has accused Petitioner of infringing 12 patents with hundreds of claims. Petitioner has expeditiously moved to file petitions for *inter partes* review against these patents, including multiple petitions filed before this one, which weighs against a discretionary denial of IPR. *See Apple Inc. v. Seven Networks, LLC*, IPR2020-00506, Paper 11 at 16 (Sept. 1, 2020). Thus, *Fintiv* factor six (other circumstances) weighs in favor of institution.

Considering the *Fintiv* factors overall, institution of *inter partes* review would best serve the efficiency and integrity of the system.

The Examiner cited only two prior art references—U.S. Patent Application No. 2005/0059400 (“Jagadeesan”) in view of U.S. Patent Application No. 2003/0017838 (“Kayama”) as a basis for rejecting the claims at issue during prosecution. Ex. 1002, 000043, 000049-50 (non-final rejections dated March 16, 2012). Applicants overcame the Jagadeesan-based rejections by arguing that “Jagadeesan fails to disclose or suggest obtaining voice data from another source.” Ex. 1002, 000050. Applicants also argued that “Jagadeesan also necessary fails to teach, disclose, or suggest delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level...” and that “Kayama, like Jagadeesan, relates to selection of a communication medium, and fails to disclose, teach, or suggest obtaining digital media content at a higher quality level from the second system.” *Id.*, 000050; Ex. 1003, ¶18.

Unlike Applicants’ prior arguments, the combination of Barnes and Shaw identifies a new and better source (content server) based on Shaw’s express teachings on “the ability of the client player (namely, the code running in that player) to identify a ‘better’ source for a stream being received and to switch to that source ‘on the fly,’ *i.e.*, while the stream is being received and rendered on the client.” Ex. 1005 (Shaw), 9:14-19. Therefore, unlike Applicants’ arguments

concerning Jagadeesan and Kayama, the combination of Barnes and Shaw delivers the digital media content at a higher quality level to the user. Ex. 1003, ¶19.

III. LEVEL OF ORDINARY SKILL

A POSITA would have been a person with a bachelor's degree in computer science, computer engineering, electrical engineering, or a similar field with at least two years of experience in multimedia communications and systems, or a person with a master's degree in computer science, computer engineering, electrical engineering or a similar field with a specialization in multimedia communications and systems. Ex. 1003 ¶¶31-32. A person with less education but more relevant practical experience may also meet this standard.

A POSITA in 2003 with the level of skill described above would have had the knowledge and skills necessary to: (i) design/implement video streaming systems and applications using wired or wireless networks; (ii) understand how to perform client-based network selection and switching in a wireless communication system supporting multimedia streaming; (iii) understand how to perform client-based server selection and switching in a multimedia delivery network; (iv) understand dynamic techniques for overcoming bandwidth limitations in mobile video streaming; (v) understand how to implement mobile video bit rate adaption; and (vi) understand mobile video compression and techniques for improving the quality of streaming media in bandwidth limited connections. Ex. 1003 ¶33.

IV. CLAIM CONSTRUCTION

A. “A Portable System”

Claims 1-5 and 11-14 are directed to a method for providing a digital media service to a user in a portable system and claims 6-10 and 16-19 are directed to a portable system for providing a digital media service. The claim preambles state a limitation because “a portable system” is an essential structure and is necessary to give life, meaning, and vitality to the claims. *Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003).

First, the portable system is an essential structure. Claim 1 requires, in part, “determining that a network connection with a second system is available” and “using the network connection to obtain the digital media content.” A network connection presupposes that there are at least two systems to form a network connection, and in claim 1 there are only two systems that can possibly be connected: the portable system and the second system. In contrast, if the portable system is not a limitation, then claim 1’s recitation of “a network connection” is indefinite because a POSITA would not know what connects to the second system. Ex. 1003 ¶36.

Second, the Board should find that “a portable system” is necessary to give life, meaning, and vitality to the claims because the Patent Owner has argued that “a portable system” is a limitation, and is a limitation that contributes to the

validity of the claims. In district court, Patent Owner expressly argued that “a portable system” is a claim limitation:

[C]laim 1 is specifically directed to (i) a portable system; (ii) digital media, (iii) use of bandwidth to make the quality-of-service determination. Because the claim is directed to only these narrow criteria, it does not claim the whole abstract idea of switching from lower- to higher-quality service. Instead it is limited to a specific implementation of that principle: selecting a source of digital media content for delivery to a portable system based on bandwidth.

Ex. 1007 at 14, 15.

V. CHALLENGED CLAIMS

A. Ground 1: Claims 1-14 and 16-19 Are Obvious Based on Barnes in View of Shaw

The challenged claims are rendered obvious by the combination of Barnes’ portable device with a media player and Shaw’s teachings for identifying an optimum server source of streaming content. The combination would have included a portable device as taught by Barnes that combines the capabilities of a mobile phone and a personal digital assistant (PDA), and includes a central processing unit, memory, one or more network connections, and a streaming media player. The media player of the combination is improved according to Shaw’s teachings of a client-side method for identifying an optimum server for obtaining streaming content. A POSITA would have been motivated to make the combination for several reasons. Ex. 1003 ¶38.

Both Barnes and Shaw teach using a media player to deliver streaming media content to a user. Shaw teaches that the best server from which to obtain a stream may change over time and that it would be advantageous for the media player to identify the best server dynamically and switch from one server to another when appropriate. Ex. 1005, 3:32-44. Shaw teaches implementing his inventive method for identifying an optimum server to obtain streaming content as a software enhancement to then-existing media client players, such as the well-known RealPlayer. *Id.*, 7:4-25. Just as Barnes teaches switching to a network with a higher bandwidth or better condition network (*see* Ex. 1004, [0070-74]), Shaw teaches that the client player can identify a “better” source for a stream and to switch that source “on the fly” while the stream is being received and provided to the client to provide a better quality of service (*see* Ex. 1005, Abs., 3:50-66, 6:57-7:3, 9:14-20; 10:18-34). Thus, the combination involves using a known technique (Shaw’s teachings on how to improve the operation of a media player such as a RealPlayer) to improve a similar device (Barnes’ teaching of a portable device that includes a media player such as a RealPlayer). Ex. 1003 ¶39.

To find a better server, Shaw teaches that “the player may then optionally perform one or more tests to determine which of a set of servers provides a best quality of service for the stream.” Ex. 1005, Abs., 3:58-64, 8:6-10. Like Barnes (*see* Ex. 1004, [0071-74]), Shaw suggests that the “best” server can be selected

based on bandwidth. For example, Shaw teaches that “[s]treaming media quality varies widely according to the type of media being delivered, the speed of the user’s Internet connection, network conditions” (Ex. 1005, 1:37-40) and bandwidth constraints (*id.*, 1:40-44). A POSITA would have found it obvious to use Barnes’ bandwidth test (selecting a better network based on higher bandwidth) (Ex. 1004, [0071-74]) as one of the tests used by Shaw to selecting a better server. Barnes’ bandwidth test is a known technique that can be readily applied as improvement to Shaw’s player, as both Barnes and Shaw contains media player, to yield predictable results (e.g., selecting better servers with a high communication bandwidth). Ex. 1003 ¶40.

In addition, the prior art references themselves suggest the proposed combination because Barnes teaches including a media player, such as a RealPlayer, on its portable device (Ex. 1004, [0039-0040]), and Shaw teaches that its inventive method improves the operation of media player and may be implemented as a software enhancement to a media player such as a RealPlayer (Ex. 1005, 7:4-25). Ex. 1003 ¶41.

A POSITA would have had a reasonable expectation of success in combining the teachings of Barnes and Shaw because Barnes suggests using a RealPlayer as its media player, and Shaw expressly teaches that his invention may be applied to a RealPlayer. Ex. 1005, 7:4-25. Ex. 1003 ¶42.

1. Independent Claims 1, 6

Claim 1 is directed to a method, and claim 6 is directed to a system that performs the method. The claims recite limitations that are near verbatim: (i) delivering (deliver) digital media content having a current quality level to a user (the “Delivering Limitation”); (ii) determining (determine) a second system is available to provide the digital media content to the user at a higher quality level (the “Determining Limitation”); (iii) using (use) the network connection to obtain the digital media content at the higher quality and delivering (deliver) the digital media content at the higher quality level to the user (the “Using Limitation”). Ex. 1003 ¶43.

Claims 1 and 6 are presented side-by-side in the following chart to show that the claims are substantially the same, except that claim 6 further requires that the claimed system have “at least one component operable” to perform for the same method limitations of claim 1:

1[a]. <i>In</i> a portable system, <i>a method</i> for providing a digital media service to a user, the <i>method</i> comprising:	6[a]. A portable system for providing a digital media service to a user, the <i>portable system</i> comprising: <i>at least one component operable to, at least:</i>
[1b] <i>delivering</i> digital media content having a current quality level to a user;	[6b] <i>deliver</i> digital media content having a current quality level to a user;

[1c] determining that a network connection with a second system is available and is characterized by a communication bandwidth that is high enough to provide the digital media content to the user at a quality level higher than the current quality level;	[6c] determine that a network connection with a second system is available and is characterized by a communication bandwidth that is high enough to provide the digital media content to the user at a quality level higher than the current quality level;
[1d] using the network connection to obtain the digital media content at the higher quality level from the second system; and delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.	[6d] use the network connection to obtain the digital media content at the higher quality level from the second system; and deliver the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

Ex. 1003 ¶44. Claims 1 and 6 are addressed together because the limitations are substantively the same. Ex. 1003 ¶45-46.

Preambles 1[a]. In a portable system, a method for providing a digital media service to a user, the method comprising: 6[a]. A portable system for providing a digital media service to a user, the portable system comprising: at least one component operable to, at least:	
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The combination of Barnes and Shaw renders the preambles obvious because Barnes teaches a portable device (i.e., system) containing a processor, memory, and a communications module that is used to provide a digital media service to the user. Ex. 1003 ¶47.

A POSITA would have found it obvious to make the combination of Barnes and Shaw a portable system for several reasons. *First*, Barnes' device is a

combination of devices that are themselves portable—a mobile phone and a personal digital assistant (PDA):

The present invention is a multi-function communications device 101 that includes conventional mobile phone and personal digital assistant (PDA) capabilities and preferably one or more of the functional modules shown in FIG. 1

Ex. 1004, [0034]. Ex. 1003 ¶48.

Barnes explains that it is preferable for the device to be “a portable device” that is “preferably handheld, but may also be worn around the neck, on the hip, attached to the arm of the user, or carried in any convenient manner.” Ex. 1004, [0035]; Ex. 1003 ¶49.

Second, Barnes teaches using its device with wireless connections, which further suggests a portable device:

Preferably the device 101 is configured to operate with a conventional mobile telephone network or wireless wide area network (WWAN), and one or more other wireless local area networks (wireless LAN or WLAN), wireless Metropolitan Area Networks (MAN), and a wireless personal area networks (PAN) (e.g., a Bluetooth® network).

Ex. 1004, [0044]; Ex. 1003 ¶50.

In addition to describing the use of Bluetooth® and Wi-Fi with the device, Barnes also teaches that its portable device communicates with a third generation (3G) network, such as some or all of the IMT-2000 or Universal Mobile

Telecommunication System (UMTS). Ex. 1004, [0048], [0055-57]. The 3G standards include CDMA-2000 based services (e.g., CDMA 1XRTT, CDMA 2000 1XEV) (CDMA refers to Code-Division Multiple Access), and Wideband CDMA. Ex. 1004, [0057]; Ex. 1003 ¶51.

A POSITA would have found it obvious to use the combination of Barnes and Shaw to provide a digital media service to a user because Barnes and Shaw each teaches providing a digital media service to a user. Ex. 1003 ¶52.

First, Barnes teaches including an audio/video player on the device. Ex. 1004, [0039]. Barnes states that the audio/video player is preferably a “RealPlayer Media Player®,” which a POSITA would have known is used to stream a digital media service to a user because it was a well-known and commercially successful digital media product. Barnes further teaches that the audio/video player may support a wide variety of audio and video formats. *Id.* [0040]. Supported formats include one or more MPEG standards, such as MPEG-4, MPEG-2, MPEG-1, and MP3; and other competing formats, such as Video for Windows®, Indeo®, and QuickTime®. Suggested supported file formats include wav, .avi, .mov, .mpeg, .mp3, .au, and aiff files. *Id.* A POSITA would have known that all of the suggested formats are used to provide a digital media service to a user because all they were well-known audio and video formats used for that purpose. Ex. 1003 ¶53.

Second, Barnes gives several examples of its device being used to provide a digital media service to the device's user. For example, Barnes teaches using the device's wireless communication links for receiving audio and video media, such as videotelephone calls, video camera data, and voice calls, as well as television and radio transmissions, which are in turn presented to the device's user. Ex. 1004, [0066]; Ex. 1003 ¶54.

As another example, Barnes explains that the device may receive digitized radio or television signals through a wireless communication link that are processed and presented to the user by the audio/video player (e.g., the RealPlayer Media Player®). *Id.* [0045]; Ex. 1003 ¶55.

Third, Shaw teaches using a client player to provide a digital media service to a user. Ex. 1005, 6:57-65, *see also id.*, 7:4-25, Abs. A POSITA would have understood Shaw teaches presenting a digital media service to a user because it was well-known that a streaming media client is the component of a streaming solution that receives the digital media stream and renders it for viewing by the user. Ex. 1003 ¶56.

Finally, a POSITA would have found it obvious that the combination of Barnes and Shaw includes "at least one component operable to" perform the limitations of claim 6. Barnes teaches providing a central processing unit (including a processor and memory) along with software implementing an

operating system and various software modules. Ex. 1004, [0035]. Barnes teaches that one of the modules is the above mentioned audio/video player (e.g., the RealPlayer Media Player). *Id.* [0039]. A POSITA would have found it obvious that the proposed combination's audio/media player as improved by Shaw's teachings would similarly be provided as instructions stored on the portable device's memory and executed by the central processing unit because that is basic manner in which all software is provided to modern computing devices. Ex. 1003 ¶57.

Delivering Limitations

[1b] delivering digital media content having a current quality level to a user;

[6b] deliver digital media content having a current quality level to a user;

The combination of Barnes and Shaw renders the “Delivering Limitations” obvious based on Shaw's teachings. Ex. 1003 ¶58.

As explained for the [a] limitations above, Shaw teaches using a client player to provide a digital media service to a user. *See supra* pp. 28-29, 14-15; Ex. 1003 ¶¶56-57, 28-30. A POSITA would have known that a streaming media client (such as a RealPlayer) delivers digital media content to a user because that was the known function for a streaming media client. Shaw observes that “streaming media clients are often called players...”, and “playing” is another way of referring to the delivery of digital media content to a user. Ex. 1005, 2:2-4; Ex. 1003 ¶59.

Shaw teaches a client player for identifying an optimum server for obtaining a stream. Ex. 1005, Title (“Client-side method for identifying an optimum server”), Abs. *First*, the client player performs a query, called “DNS SRV,” to identify a set of one or more servers from which a stream can be obtained:

A client machine includes a media player provisioned to perform a query to a CDNSP nameserver having a network map of Internet traffic conditions. In a preferred embodiment, the query is a DNS SRV lookup and includes an identification of the client player. The query is made asking for a particular service (e.g., RTSP) via a particular protocol (TCP) in a particular CDNSP domain. In response, the nameserver returns a set of one or more tokens, with each token defining a machine or, in the preferred embodiment, a group of machines, from which the player should seek to obtain given content (e.g., a stream).

Id., 3:49-58, Abs. Shaw describes this process in further detail with reference to FIG. 3 (*see id.*, 7:26-7:49 and 7:63-8:5) and FIG. 4 (*see id.*, 10:4-13). Ex. 1003 ¶¶60.

Second, after obtaining a set of potential sources for the stream from the “DNS SRV” query, the client player performs tests to determine which server is the best server for obtaining the stream and then uses the best server to retrieve the stream:

The player may then optionally perform one or more tests to determine which one of a set of returned servers provides a best

quality of service for the content delivery. That server is then used to retrieve the content.

Ex. 1005, 3:58-62, Abs. In connection with FIG. 3, Shaw describes a method of testing each server to determine which is the “fastest” respond, and deems the “fastest” server to be the best server for the stream:

[T]he server testing process 306 responds to the returned token information or to information obtained from further processing of the token..., and may perform one or more tests to help identify a best server. ... In an illustrative embodiment, the server testing process has been provided with a list of servers to test. It then contacts each one, e.g., by using the SRV protocol.... Upon contacting a server, the process issues a status request to get information about the capabilities of the server. One convenient technique is to use an RTSP “OPTIONS” command. The response from each server will be a static text string. The request-response is timed by the server testing process, which then determines the “best” server (e.g., usually the one providing the fastest response).

Ex. 1005, 8:6-25; 10:13-15 (corresponding to step 404); Ex. 1003 ¶61.

The process is summarized in the flow chart shown in FIG. 4:

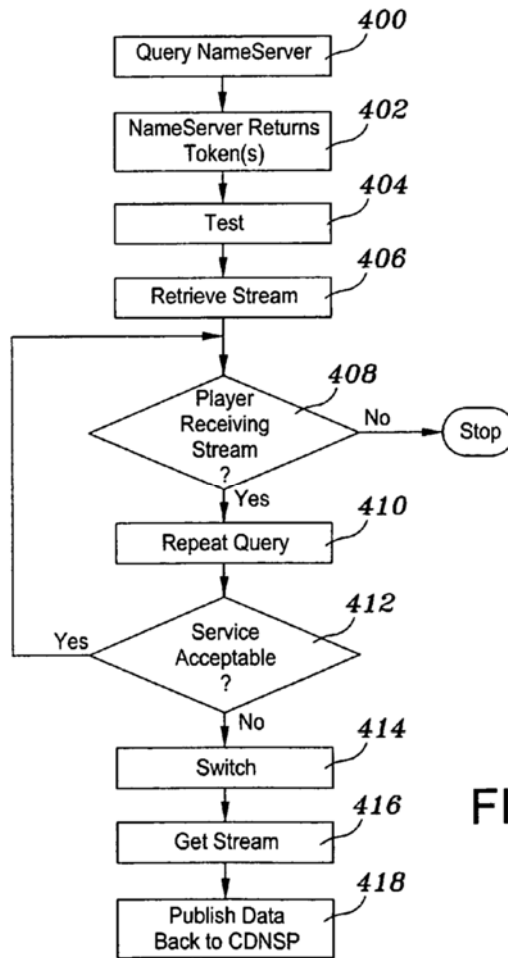


FIG. 4

Ex. 1003 ¶62.

A POSITA would have understood that a stream selected in this manner teaches delivering digital media content having a current quality level because a stream is a representation of digital media content, and it was well-known that a given stream has a particular quality level that is dependent upon a number of factors. Specifically, Shaw teaches that “[s]treaming media quality varies widely according to the type of media being delivered, the speed of the user’s Internet connection, network conditions, the bit rate at which the content is encoded, and the format used.” Ex. 1005, 1:37-40. In other words, the quality of the stream

depends upon parameters used to encode the stream as well as the conditions when the stream is being retrieved and delivered. Ex. 1003 ¶63.

For example, Shaw also teaches that insufficient bandwidth leads to poor streaming video, including lower resolution and few frames per second. *See* Ex. 1005, 1:40-44 (“In general, streaming audio can be FM quality, but, given typical bandwidth constraints, streaming video is poor by TV standards, with smaller screens, lower resolution, and fewer frames per second.”); Ex. 1003 ¶64.

In addition, Shaw teaches that it was common to encode streaming media at different bits so that a user with a lower bandwidth connection can access the stream (albeit at a lower quality), while a user with a higher bandwidth connection can access a higher quality version of the stream. Ex. 1005, 1:54-58. Thus, a POSITA would have understood that the quality level of streaming media content varies according to the encoding format, encoding bit rate, and the connection speed between the media player client and the source server. Furthermore, a POSITA would have found it obvious that a connection with higher available bandwidth supports high speed (fast) connections and streams encoded at higher encoding rates. Ex. 1003 ¶65.

Determining Limitations

- [1c] determining that a network connection with a second system is available and is characterized by a communication bandwidth that is high enough to provide the digital media content to the user at a quality level higher than the current quality level;**
- [6c] determine that a network connection with a second system is available and is characterized by a communication bandwidth that is high enough to provide the digital media content to the user at a quality level higher than the current quality level;**

The combination of Barnes and Shaw renders the “Determining Limitations” obvious based on Shaw’s teachings. Ex. 1003 ¶66.

As explained for the “Delivering” limitations, Shaw’s client media player selects a server source for a stream to be played or streamed to the user. Shaw also teaches the “Determining” limitations because Shaw teaches periodically determining whether there is a better source for the stream (i.e., the second system):

Periodically, the client player code repeats the DNS SRV query during playback to determine whether there is a better source for the stream. If so, the player is controlled to switch to the better stream source “on the fly” if appropriate to maintain and/or enhance the quality of service.

Ex. 1005, 3:62-66, Abs, 10:16-26. In other words, Shaw teaches that the client player periodically performs the same process of identifying a set of servers from which a stream can be obtained, and performing a test to determine if one of the

servers is available to provide the stream at a better quality level (i.e., the second system). Ex. 1003 ¶67.

When repeating the same process for identifying the (then best) source for the stream, Shaw explains that the client player may also consider additional factors, such as the cost of switching mid-stream, and whether the current source is providing an acceptable stream:

Another function provided by the present invention is the ability of the client player ... to identify a “better” source for a stream being received and to switch to that source “on the fly,” i.e., while the stream is being received and rendered on the client. ... Because it is likely there will be some cost to switching (e.g., perhaps a short interruption in service), a client should only switch servers if it is not getting an acceptable stream from the first server. The decision process 308 makes a decision regarding whether the stream being received is “acceptable,” e.g., a stream that is not currently being thinned by the server, or some other metric. As used herein, “acceptable” does not necessarily mean acceptable quality. It can also mean acceptable from a stream management point of view.

Ex. 1005, 9:14-29; Ex. 1003 ¶68.

A POSITA would have understood that repeating the “DNS SRV” query teaches determining that a network connection with a second system is available because the query identifies servers that the client may connect to in order to obtain the stream at a higher quality level. Each of the servers identified by the

process (other than the currently used server) can be the claimed second system. A POSITA would have found it obvious that there is a separate network connection between the client player and each of the servers identified by the repeated query process because a client must establish a separate connection with each server to communicate. Ex. 1003 ¶69.

A POSITA would have found it obvious to determine the communication bandwidth between the client media player and each server identified by the “DNS SRV” query in order to determine whether that server can provide the digital media content to the user at a quality level higher than the current quality level for several reasons. Ex. 1003 ¶70.

First, Shaw teaches that the purpose of performing the test is to determine whether there is a “better” source for the current stream. A POSITA would have found it obvious to determine whether the connection between the client and the potential second system has a higher communication bandwidth because Shaw teaches that the communication bandwidth between the client and stream source affects stream quality. *See supra* pp. 32-33; Ex. 1003¶¶63-65 (citing Ex. 1005, 1:37-58). Ex. 1003 ¶71.

Second, Shaw teaches that a stream is unacceptable if the stream is being “thinned.” Ex. 1005, 9:24-27 (“The decision process 308 makes a decision regarding whether the stream being received is ‘acceptable,’ e.g., a stream that is

not currently being thinned by the server...”). This decision process is used to decide whether the client player should switch servers mid-stream. *Id.*, 9:19-24. A POSITA would have known that “thinning” a stream refers to dropping portions of a stream from transmission at its source so that the client can keep up with the stream. In other words, when a server detects that there is insufficient communication bandwidth between the server and the client, the server may “thin” the stream by dropping information (e.g., frames) from the stream so that the client can keep up. Because thinning is a technique for handling a drop in communication bandwidth, a POSITA would have found it obvious to choose a different source for the stream if there is a higher bandwidth connection between the client and alternate source because it would avoid the need for thinning the stream and therefore provide the stream at a higher quality level. Therefore, Shaw suggests determining the communication bandwidth of the connection between the media player and each source server to pick a better source. Ex. 1003 ¶72.

To the extent Patent Owner argues that Shaw does not sufficiently suggest determining the communication bandwidth of the network connection between the client media player and the servers identified by the “DNS SRV” query, using a bandwidth test would have been an obvious improvement based upon Barnes’ teachings. *First*, Barnes suggests determining the communication bandwidth of a

network connection because it describes choosing between network connections based on their available bandwidth. Ex. 1004, [0070-71]; Ex. 1003 ¶73.

Barnes also teaches choosing a connection with the higher communication bandwidth for use with video streaming because streaming a video requires relatively high communication bandwidth. Ex. 1004, [0072]. A POSITA would have found it obvious that Barnes' device would have had to determine the bandwidth of each connection in order to know how to choose between connections based on their available communication bandwidths. Ex. 1003 ¶74.

Second, like Shaw, Barnes teaches that it is advantageous to switch network connections when Barnes' device detects that the current network connection has slowed down below a certain speed or the device detects that a second network connection has more bandwidth available. Ex. 1004, [0074] (network switching conditions #1 and #5). A POSITA would have understood that Barnes' device would have had to determine the communication bandwidth of a network connection in order to make a decision to switch when a connection falls below a threshold speed. Ex. 1003 ¶75.

Finally, Barnes teaches determining the communication bandwidth of a network connection by requesting bandwidth data when the device requests to communicate with a network. *See* Ex. 1004, [0073]; Ex. 1003 ¶76.

A POSITA would have found it obvious to apply Barnes’ bandwidth test to Shaw’s selection of the best server because both Barnes and Shaw suggest that high communication bandwidth contributes to delivering high quality media services (*see supra* pp. 32-33; Ex. 1003 ¶¶63-65; *see also* Ex. 1004, [0072]), and Shaw expressly teaches making use of other tests (like Barnes’ bandwidth test) in its method of finding the best server (Ex. 1005, 8:6-13, 10:13-15). Ex. 1003 ¶77.

Using Limitations

- [1d] using the network connection to obtain the digital media content at the higher quality level from the second system; and delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.**
- [6d] use the network connection to obtain the digital media content at the higher quality level from the second system; and deliver the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.**

The combination of Barnes and Shaw renders the “Using Limitations” obvious based on Shaw’s and Barnes’ teachings. Ex. 1003 ¶78.

A POSITA would have understood that Shaw contemplates using the network connection to obtain the digital media content at the higher quality level from the second system. For example, Shaw teaches “the ‘best’ [server] can change very quickly given the relatively large size of most streams (and the near-infinite size of all live streams). Thus, in many cases, the ‘best’ server for a given client player receiving a given stream is likely to change before the stream is

finished.” Ex. 1005, 3:33-39. Shaw further teaches that “[i]t would be desirable to enable a client player to identify a best server dynamically and, when appropriate, to enable the player to selectively switch from one server to another during the process of downloading and outputting a given stream or other large file.” Ex. 1005, 3:40-44; Ex. 1003 ¶79.

Shaw reinforces this teaching by declaring that “[a]nother function provided by the present invention is the ability of the client player (namely, the code running in that player) to identify a ‘better’ source for a stream being received and to switch to that source ‘on the fly,’ i.e., while the stream is being received and rendered on the client.” Ex. 1005, 9:14-19; *see also* 9:37-40 (“If the decision process determines that another server is a better source than a current source, control is passed to the stream switch process 310, which is the process that makes the actual switch from one server to another.”). As described for the Determining Limitations [1c] and [6c], Shaw teaches that one reason to switch to a different server is that the currently obtained stream is being “thinned” and therefore provides unacceptable quality. Ex. 1005, 9:24-27. Because thinning is a technique for handling a drop in communication bandwidth, a POSITA would have found it obvious to switch to a different source for the stream if there is a higher bandwidth connection between the client and alternate source because it would avoid the need for thinning the stream and therefore provide the stream at a higher quality level.

See, id., 1:37-40 and 1:47-58 (describing well-known practice of encoding streams at multiple bits so that higher quality streams can be provided to users with faster connections and lower quality streams can be provided to users with slower connections). Thus, a POSITA would have found it obvious from this teaching in Shaw that switching to a better source provides a higher quality level than the current quality level. *See also* Ex. 1005, Abs. (“If a better source exists, the player performs a switch to the better stream...if appropriate to maintain and/or enhance the quality of service.”), 3:64-66; Ex. 1003 ¶80.

Additionally, Shaw teaches switching to the second server to obtain the streaming media without any interruption to the media service because Shaw explains that “the stream switch process includes the capability to match data packets from first and second servers to enable a substantially seamless switch to the new stream source.” Ex. 1005, 9:63-66; Ex. 1003 ¶81.

Based on Shaw’s teachings above, a POSITA would have found it obvious that the purpose of the seamless switch is to use the new and better stream source to continue delivery of the digital media content to the user at the higher quality level without any break or interruption. Therefore, Shaw’s teachings render the Using Limitation obvious. Ex. 1003 ¶82.

To the extent Patent Owner argues that Shaw does not teach this limitation, Barnes also teaches using the network connection to obtain the digital media

content at the higher quality level from the second system because Barnes teaches a client device that switches from a first network to a second network if a second network has higher bandwidth when network switching conditions arise, “the device 101 establishes a communication with the external device via a second network and preferably terminates the communication established through the first network.” Ex. 1004, [0074]. A POSITA would have found it obvious that a client device that is rendering digital media content to a user but switches from a first network to a second available network due to changed network conditions would then use the second network to obtain media content after the switch and continue to deliver media content to the user. Ex. 1003 ¶83.

2. Independent Claims 11, 16

Claim 11 is directed to a method, and claim 16 is directed to a system that performs the method. Claims 11 and 16 are presented side-by-side in the following chart to show that the two claims are substantially the same, except that claim 16 further requires that the claimed system have “at least one component operable” to perform for the same method limitations of claim 11:

11[a]. <i>In</i> a portable system, <i>a method</i> for providing a digital media service to a user, the <i>method</i> comprising:	16[a]. A portable system for providing a digital media service to a user, the <i>portable system</i> comprising: <i>at least one component operable to, at least:</i>
[11b] <i>delivering</i> digital media content having a current quality level to a user;	[16b] <i>deliver</i> digital media content having a current quality level to a user;

[11c] <i>communicating</i> with a second system regarding communication bandwidth of a network connection with the second system;	[16c] <i>communicate</i> with a second system regarding communication bandwidth of a network connection with the second system;
[11d] <i>determining</i> , based at least in part on said communicating, that the network connection is available and characterized by at least a minimum determined communication bandwidth;	[16d] <i>determine</i> , based at least in part on said communicating, that the network connection is available and characterized by at least a minimum determined communication bandwidth;
[11e] in response to at least said determining, <i>utilizing</i> the network connection to receive the digital media content at a quality level higher than the current quality level; and <i>delivering</i> the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.	[16e] in response to at least said determining, <i>utilize</i> the network connection to receive the digital media content at a quality level higher than the current quality level; and <i>deliver</i> the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

Ex. 1003 ¶84.

Because the substantive limitations of claims 11 and 16 are the same (limitations [b] – [e]), those claims are addressed together. Ex. 1003 ¶85-86.

Preambles

11[a]. In a portable system, a method for providing a digital media service to a user, the method comprising:

16[a]. A portable system for providing a digital media service to a user, the portable system comprising: at least one component operable to, at least:

The combination of Barnes and Shaw teaches a method and a portable system for providing a digital media service to a user based on Barnes' portable device and Shaw's media player. Ex. 1003 ¶87.

As explained for preambles 1[a] and 6[a], which are identical to preambles 11[a] and 16[a], respectively, the combination of Barnes and Shaw renders the preambles obvious because Barnes teaches a portable device (i.e., system) providing a central processing unit (including a processor and memory) along with software implementing an operating system and various software modules, including an audio/media player as improved by Shaw's teachings, for providing a digital media service to a user, including performing the limitations of claim 16. *See supra* pp. 25-29 (claim limitation 1[a]); Ex. 1003 ¶¶88, 47-57.

Delivering Limitations

[11b] delivering digital media content having a current quality level to a user;

[16b] deliver digital media content having a current quality level to a user;

The combination of Barnes and Shaw renders the "Delivering Limitations" [11b] and [16b] obvious based on Shaw's media player teachings. Ex. 1003 ¶89.

Limitation [11b] is identical to limitation [1b], and limitation [16b] is identical to limitation [6b]. As explained for [1b] and [6b], Shaw teaches delivering digital media content having a current quality level to a user using a media player, such as a RealPlayer. *See supra* pp. 29-33; Ex. 1003 ¶¶90, 58-65.

Communicating Limitations

[11c] communicating with a second system regarding communication bandwidth of a network connection with the second system;

[16c] communicate with a second system regarding communication bandwidth of a network connection with the second system;

The combination of Barnes and Shaw renders the “Communicating Limitations” [11c] and [16c] obvious based on Shaw’s and Barnes’ teachings. Ex. 1003 ¶91.

First, a POSITA would have found these limitations are obvious because Shaw teaches using a media player that implements the Real Time Streaming Protocol, and a POSITA would have understood that the Real Time Streaming Protocol provides for communicating bandwidth information to the streaming server. Ex. 1003 ¶92.

Shaw explains that media players (including RealPlayer) use the Real Time Streaming Protocol (RTSP) to deliver streaming media. Ex. 1005, 2:14-19. Shaw describes its media player’s use of RTSP in several ways. For example, the DNS SRV query identifies servers available to provide service using RTSP. *Id.*, 3:48-54, *see also id.*, 7:39-41, Abs. Other examples are Shaw’s description of using RTSP’s OPTIONS and DESCRIBE commands to test servers. *See id.*, 8:13-31. Thus, a POSITA would have understood that Shaw teaches using a media player that implements RTSP. Ex. 1003 ¶93.

A POSITA would have found it obvious that a media player according to Shaw's teachings communicates with a second system regarding communication bandwidth of a network connection with the second system because Shaw's media player implements RTSP and RTSP provides for sending an indication of the client's available bandwidth in the header of a request sent to a server (i.e., second system):

The Bandwidth request header field describes the estimated bandwidth available to the client, expressed as a positive integer and measured in bits per second. *The bandwidth available to the client may change during an RTSP session*, e.g., due to modem retraining.

Ex. 1006, 46 and 44 (describing header field definitions for the Real Time Streaming Protocol). A POSITA would have understood that this teaches a communication with a second system because the bandwidth request header is a data field included in an request sent from the RTSP client to the RTSP server. And, a POSITA would have found it obvious that the bandwidth available to the client included in the request is the client's estimate of the communication bandwidth available between the RTSP client and the RTSP server because the bandwidth of the connection between the client and the server is what limits the ability to reproduce a stream in real-time. In other words, if the bandwidth is too low, then the client cannot receive data from the server to reproduce the stream in

real-time, which leads to the pause in playback caused by buffering that is familiar to users of streaming media. Ex. 1003 ¶94.

A POSITA would have been knowledgeable of the features of the Real Time Streaming Protocol and would have known how to implement the standard. A POSITA would have known that Real Time Streaming Protocol (RTSP) refers to a standard issued by the Internet Engineering Task Force (IETF) designated RFC2326. For example, a patent application filed on January 19, 2001 (and directed to a video content transmitting system and method) identified “RTSP (Real Time Streaming Protocol (RFC2326))” as an IETF standard that is relevant to multimedia communications over networks. *See* Ex. 1008, [0002]-[0003]. The IETF is a well-known standards body because it has issued a number of influential standards, such as the Hypertext Transfer Protocol (HTTP). A POSITA would have also known that IETF standards are available from the IETF website at www.ietf.org. *See, e.g.*, Ex. 1009 (international patent application published on March 23, 2000 noting that the Real Time Streaming Protocol is published as RFC 2326 and available from ietf.org). Ex. 1003 ¶95.

Second, a POSITA would have found that this limitation is suggested by Shaw’s teachings relating to multi-rate stream encoding. As described above (*see supra* pp. 14-15, 33-33; Ex. 1003 ¶¶65, 29), it was common for content owners to encode streaming media at multiple encoding bit rates so that users with faster

connections can receive a higher-quality stream (i.e., a stream encoded at a higher bit rate), while users with slower connections can still receive the stream albeit at a lower-quality level (i.e., a stream encoded at a lower bit rate). Ex. 1005, 1:37-40, 1:47-58. A POSITA would have understood from this teaching that it is advantageous for the streaming client to inform the streaming server of the communication bandwidth of the network connection between the streaming client and streaming server so that the streaming server can choose the encoding with the highest encoding bit rate that can be delivered in real-time given the available bandwidth. Ex. 1003 ¶96.

Finally, to the extent Patent Owner argues that Shaw does not sufficiently teach communicating with a second system regarding the communication bandwidth of the server connection, it would have been an obvious improvement based on Barnes' teachings of determining and communicating the bandwidth of a network connection. Barnes teaches that a client can determine the communication bandwidth of a network connection (such as to an available network) when requesting communication with the available network. Ex. 1004, [0073]; Ex. 1003 ¶97.

Given that Barnes' portable device determines the communication bandwidth of the second system (available network) "during the requested communication" (Ex. 1004, [0073]), a POSITA would have found it obvious that

the portable and the second system communicate regarding the bandwidth of the connection. Ex. 1003 ¶98.

Determining Limitations

[11d] determining, based at least in part on said communicating, that the network connection is available and characterized by at least a minimum determined communication bandwidth;

[16d] determine, based at least in part on said communicating, that the network connection is available and characterized by at least a minimum determined communication bandwidth;

The combination of Barnes and Shaw renders limitations [11d] and [16d] obvious based upon Shaw's and Barnes' teachings. Ex. 1003 ¶99.

As explained above, the "Delivering Limitations" of claims 1, 6, 11, and 16 are substantively the same, and rendered obvious based on Shaw's teachings. *See supra* pp. 44, 29-33 (limitations [11b] and [1b]); Ex. 1003 ¶¶58-65, 90. The analysis of the "Delivering Limitations" explains how Shaw teaches identifying an optimum server for obtaining a stream. Ex. 1005, Title ("Client-side method for identifying an optimum server"), Abs. *First*, the client player performs a "DNS SRV" query to identify a set of one or more servers from which a stream can be obtained. *Id.*, 3:49-58 (summary of the invention) and Abs. Shaw describes this process in further detail with reference to FIG. 3 (*see id.*, 7:26-7:49 and 7:63-8:5) and FIG. 4 (*see id.*, 10:4-13). *Second*, after obtaining a set of potential sources for the stream from the "DNS SRV" query, the client player performs tests to

determine which server is the best server for obtaining the stream and then uses the best server to retrieve the stream. *Id.*, 3:58-62, 8:6-13, 10:13-15, Abs. Ex. 1003 ¶100.

In connection with FIG. 3, Shaw describes a method of testing each server that involves sending a Real Time Streaming Protocol request to each of the servers:

[T]he server testing process 306 responds to the returned token information or to information obtained from further processing of the token ..., and may perform one or more tests to help identify a best server. ... In an illustrative embodiment, the server testing process has been provided with a list of servers to test. It then contacts each one, e.g., by using the SRV protocol, which specifies a well-defined ordering scheme, although the player can use any scheme or simply try all servers at level n before trying n+1. ***Upon contacting a server, the process issues a status request to get information about the capabilities of the server. One convenient technique is to use an RTSP “OPTIONS” command.*** The response from each server will be a static text string. The request-response is timed by the server testing process, which then determines the “best” server (e.g., usually the one providing the fastest response).

Ex. 1005, 8:6-25, *see also id.*, 10:13-15. The responses received from the servers are used to determine the “best” server for the stream. *Id.*; Ex. 1003 ¶101.

A POSITA would have found that the Determining Limitations are rendered obvious by modifying's Shaw testing step by communicating with each tested server regarding the communication bandwidth of the network connection between the media player and the tested server as described for the Communicating Limitations [11c] and [16c]. As explained for Communication Limitations [11c] and [16c], it would have been obvious to communicate bandwidth information based upon Shaw's teaching of a media player that uses Real Time Streaming Protocol (RTSP) because RTSP provides for sending the client available bandwidth information in the header to a RTSP request (*see supra* pp.45-48; Ex. 1003 ¶¶91-96), and Barnes' teaching of including bandwidth information in a request for communications (*see supra* pp.48-49; Ex. 1003 ¶¶97-98). A POSITA would have been motivated to modify Shaw's testing process in this manner and have had a reasonable expectation of its success because Shaw teaches that the testing step is not limited to the example given, but that any suitable test for determining the "best" server may be used. Ex. 1005, 8:6-28, 3:58-61 ("The player may then optionally perform one or more tests to determine which one of a set of returned servers provides a best quality of service for the content delivery."). A bandwidth test would have been obvious given a POSITA's knowledge that the bandwidth of the connection between a streaming client and streaming server is an

important determinant in the quality level of the stream. *See* Ex. 1005, 1:37-58; Ex. 1003 ¶102.

Finally, a POSITA would have found it obvious to determine whether the available network connection is characterized by at least a minimum determined communication bandwidth for several reasons. As described before, a POSITA would have known that there is a relationship between connection bandwidth and stream quality (as described in Shaw's background). Ex. 1005, 1:37-58. Shaw teaches that one reason to switch from one server to another is when the client detects that the stream is being thinned, which occurs where there is insufficient bandwidth between the client and server. Ex. 1005, 9:21-27; *see also supra* pp.36-37; Ex. 1003 ¶72 (describing thinning). Shaw's teaches that a client should switch servers only when the improvement will outweigh the cost of switching suggests determining a minimum bandwidth necessary to provide an improvement over the existing connection because otherwise the client would switch servers whenever there is a connection with any improvement in communication bandwidth, which could worsen the streaming experience if the client has pauses or gaps in streaming due to the switching without the new source providing some amount of improved quality to offset the switching cost. Ex. 1003 ¶103.

Further, to the extent Patent Owner argues that Shaw does not sufficiently teach the second system has a communication bandwidth above a minimum

predetermined bandwidth, Barnes teaches this limitation because Barnes teaches determining whether an network is available for a media connection based on different types of bandwidth information, including “the anticipated bandwidth necessary.” Ex. 1004, [0071]. A POSITA would have found it obvious that an “anticipated bandwidth necessary” suggests a “minimum determined” bandwidth because “anticipated *bandwidth necessary*” concerns how much bandwidth is expected or required for a given stream, for example, for downloading and watching a movie. Thus, a POSITA would have understood that “anticipated *bandwidth necessary*” suggests an expected minimum bandwidth required for providing service. Ex. 1003 ¶104.

Utilizing Limitations

- [11e] in response to at least said determining, utilizing the network connection to receive the digital media content at a quality level higher than the current quality level; and delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.**
- [16e] in response to at least said determining, utilize the network connection to receive the digital media content at a quality level higher than the current quality level; and deliver the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.**

The combination of Barnes and Shaw renders the “Utilizing Limitations” obvious based on Shaw’s and Barnes’ teachings. Ex. 1003 ¶105.

As explained for claim limitations [11d] and [16d], Shaw teaches a client player that determines mid-stream when a second server is available and is a better source because it has a communication bandwidth that is above a minimum determined bandwidth (the “Determining Limitations”). Ex. 1003, ¶106.

A POSITA would have understood that Shaw contemplates utilizing the determined network connection to receive and deliver the digital media content at a quality level higher than the current quality level from the second system. For example, Shaw teaches “the ‘best’ [server] can change very quickly given the relatively large size of most streams (and the near-infinite size of all live streams). Thus, in many cases, the ‘best’ server for a given client player receiving a given stream is likely to change before the stream is finished.” Ex. 1005, 3:33-39. Shaw further teaches that “[i]t would be desirable to enable a client player to identify a best server dynamically and, when appropriate, to enable the player to selectively switch from one server to another during the process of downloading and outputting a given stream or other large file.” Ex. 1005, 3:40-44. Ex. 1003 ¶107.

Shaw reinforces this teaching by declaring that “[a]nother function provided by the present invention is the ability of the client player (namely, the code running in that player) to identify a ‘better’ source for a stream being received and to switch to that source ‘on the fly,’ i.e., while the stream is being received and rendered on the client.” Ex. 1005, 9:14-19; *see also id.*, 9:37-40 (“If the decision

process determines that another server is a better source than a current source, control is passed to the stream switch process 310, which is the process that makes the actual switch from one server to another.”). Shaw teaches that one reason to switch to a different server is that the currently obtained stream is being “thinned” and therefore provides unacceptable quality. Ex. 1005, 9:24-27. Because thinning is a technique for handling a drop in communication bandwidth, a POSITA would have found it obvious to switch to a different source for the stream if there is a higher bandwidth connection between the client and alternate source because it would avoid the need for thinning the stream and therefore provide the stream at a higher quality level. *See, id.*, 1:37-40 and 1:47-58 (describing well-known practice of encoding streams at multiple bits so that higher quality streams can be provided to users with faster connections and lower quality streams can be provided to users with slower connections). Thus, a POSITA would have found it obvious from this teaching in Shaw that switching to a better source provides a higher quality level than the current quality level. *See also* Ex. 1005, Abs. (“If a better source exists, the player performs a switch to the better stream...if appropriate to maintain and/or enhance the quality of service.”), 3:64-66. Ex. 1003 ¶108.

Additionally, Shaw teaches switching to the second server to receive the streaming media without any interruption to the media service because Shaw explains that “the stream switch process includes the capability to match data

packets from first and second servers to enable a substantially seamless switch to the new stream source.” *Id.*, 9:63-66. Ex. 1003 ¶109.

Based on Shaw’s teachings above, a POSITA would have found it obvious that the purpose of the seamless switch is to use the new and better stream source to continue delivery of the digital media content to the user at the higher quality level without any break or interruption. Therefore, Shaw’s teachings render the Utilizing Limitation obvious. Ex. 1003 ¶110.

To the extent Patent Owner argues that Shaw does not teach this limitation, it is my opinion that Barnes also teaches utilizing the network connection to receive the digital media content at a quality level higher than the current quality level from the second system because Barnes teaches a client device that switches from a first network to a second network if a second network has higher bandwidth when network switching conditions arise, “the device 101 establishes a communication with the external device via a second network and preferably terminates the communication established through the first network.” Ex. 1004, [0074]. A POSITA would have found it obvious that a client device that is rendering digital media content to a user but switches from a first network to a second available network due to changed network conditions would then use the second network to receive media content after the switch and continue to deliver media content to the user. Ex. 1003 ¶111.

3. Dependent Claims 2, 7, 12, 17

- 2. **The method of claim 1, where the digital media content is video media.**
- 7. **The portable system of claim 6, where the digital media content is video media.**
- 12. **The method of claim 11 where the digital media content is video media.**
- 17. **The portable system of claim 16, where the digital media content is video media.**

Claims 2, 7, 12, and 17 depend from claims 1, 6, 11, and 16, respectively.

The combination of Barnes and Shaw renders the additional limitations of these claims obvious. Ex. 1003 ¶112.

As describe above, the claims 1, 6, 11, and 16 are rendered obvious by the combination of Barnes’ portable device having a media player and Shaw’s teachings for identifying an optimum server source of streaming content. *See supra* pp. 21-23; Ex. 1003 ¶¶38-42. A POSITA would have understood that the combination renders claims 2, 7, 12, and 17 obvious because Barnes teaches that the media player is used to deliver digital media content that is video media, and Shaw also suggests delivering digital media content that is video media to a user. Ex. 1003 ¶113.

First, Barnes teaches including an ***audio/video player*** on the device. Ex. 1004, [0039]. Barnes states that the audio/video player is preferably a “RealPlayer Media Player®,” which a POSITA would have known is used to stream digital

media, including video media, to a user because it was a well-known and commercially successful digital media product. Barnes further teaches that the audio/video player may support a wide variety of audio and video formats. *Id.* [0040]. Supported video formats include one or more MPEG standards, such as MPEG-4, MPEG-2, and MPEG-1; and other competing video formats, such as Video for Windows®, Indeo®, and QuickTime®. *Id.* In addition, Barnes suggests that the audio/video player support several file formats that are well-known video formats: .avi, .mov, and .mpeg files. *Id.* A POSITA would have recognized that these suggested formats are used to provide digital media content that is video media to a user. Ex. 1003 ¶114.

In addition, Barnes gives several examples of its device being used to provide a video media to the device's user. For example, Barnes teaches using the device's wireless communication links for video media, such as video telephone calls, video camera data, and television. Ex. 1004, [0066], [0045]; Ex. 1003 ¶115.

Second, Shaw teaches using a client player to identify the best server for obtaining a stream. Ex. 1005, 6:57-65. Shaw teaches that streaming media can include video media encoded from sources such as VHS or Beta format tapes, MPEG video, and AVI formats, which were all well-known video media. *Id.* 1:44-47. And, Shaw teaches that its invention may be implemented as an enhancement to a streaming client player such as a RealPlayer, which was a well-known

streaming client used to deliver digital media content that is video media. *Id.*, 7:4-25, 2:7-11 (describing how the major streaming formats (RealSystem G2, Microsoft Windows Media, and Apple QuickTime) support all media types including audio and video); Ex. 1003 ¶116.

4. Dependent Claims 3, 8, 13, 18

- 3. The method of claim 1, where the digital media content is audio media.**
- 8. The portable system of claim 6, where the digital media content is audio media.**
- 13. The method of claim 11, where the digital media content is audio media.**
- 18. The portable system of claim 16, where the digital media content is audio media.**

Claims 3, 8, 13, and 18 depend from claims 1, 6, 11, and 16, respectively. The combination of Barnes and Shaw renders the additional limitations of these claims obvious. Ex. 1003 ¶117.

As describe above, the claims 1, 6, 11, and 16 are rendered obvious by the combination of Barnes' portable device having a media player and Shaw's teachings for identifying an optimum server source of streaming content. *See supra* pp. 21-23; Ex. 1003 ¶¶38-42. A POSITA would have understood that the combination renders claims 2, 7, 12, and 17 obvious because Barnes teaches that the media player is used to deliver digital media content that is audio media, and

Shaw also suggests delivering digital media content that is audio media to a user.

Ex. 1003 ¶118.

First, Barnes teaches including an **audio/video player** on the device. Ex. 1004, [0039]. Barnes states that the audio/video player is preferably a “RealPlayer Media Player®,” which a POSITA would have known is used to stream digital media, including audio media, to a user because it was a well-known and commercially successful digital media product. Barnes further teaches that the audio/video player may support a wide variety of audio and video formats. *Id.* [0040]. Barnes suggests that the audio/video player support several file formats that are well-known audio media formats: wav, .mp3, .au, and .aiff files. *Id.* A POSITA would have recognized that these suggested formats are used to provide digital media content that is audio media to a user. Ex. 1003 ¶119.

In addition, Barnes gives several examples of its device being used to provide a video media to the device’s user. For example, Barnes teaches using the device’s wireless communication links for audio media, such voice telephone calls and radio. Ex. 1004, [0066], [0045]; Ex. 1003 ¶120.

Second, Shaw teaches using a client player to identify the best server for obtaining a stream. Ex. 1005, 6:57-65. Shaw teaches that streaming media can include audio media encoded from sources such as MP3 audio and AVI formats, which were all well-known audio media. *Id.* 1:44-47. And, Shaw teaches that its

invention may be implemented as an enhancement to a streaming client player such as a RealPlayer, which was a well-known streaming client used to deliver digital media content that is audio media. *Id.*, 7:4-25, 2:7-11 (describing how the major streaming formats (RealSystem G2, Microsoft Windows Media, and Apple QuickTime) support all media types including audio and video); Ex. 1003 ¶121.

5. Dependent Claims 4, 9

- 4. The method of claim 1, wherein said determining comprises communicating information of the communication bandwidth with the second system.**
- 9. The portable system of claim 6, where said at least one component is operable to determine that a network connection is available and characterized by a communication bandwidth that is high enough to provide the digital media service to the user at a quality level higher than the current quality level by, at least in part, operating to communicate information of the communication bandwidth with the second system.**

Claims 4 and 9 depend from claims 1 and 6 respectively. Both dependent claims state one additional limitation on their respective independent claims: communicating (or communicate) “information of the communication bandwidth with the second system.” Claims 4 and 9 are rendered obvious by the combination of Barnes and Shaw. Ex. 1003 ¶122.

First, a POSITA would have found these limitations are rendered obvious because Shaw teaches using a media player that implements the Real Time Streaming Protocol (RTSP), and a POSITA would have understood that RTSP

provides for communicating communication bandwidth information to the streaming server. Ex. 1003 ¶123.

Shaw explains that media players (including RealPlayer) use RTSP to deliver streaming media. Ex. 1005, 2:14-19. Shaw describes its media player's use of RTSP in several ways. For example, the DNS SRV query identifies servers available to provide service using RTSP. *Id.*, 3:48-54; *see also id.*, 7:39-41, Abs. Other examples are Shaw's description of using RTSP's OPTIONS and DESCRIBE commands to test servers. *See id.*, 8:13-31. Thus, a POSITA would have understood that Shaw teaches using a media player that implements RTSP. Ex. 1003 ¶124.

A POSITA would have found it obvious that a media player according to Shaw's teachings communicates information of the communication bandwidth with the second system because Shaw's media player implements RTSP and RTSP provides for sending an indication of the client's available bandwidth in the header of a request sent to a server (i.e., second system):

The Bandwidth request header field describes the estimated bandwidth available to the client, expressed as a positive integer and measured in bits per second. ***The bandwidth available to the client may change during an RTSP session***, e.g., due to modem retraining.

Ex. 1006 (RFC2326), 46 and 44 (describing header field definitions). A POSITA would have understood that this teaches a communication with a second system

because the bandwidth request header is a data field included in an request sent from the RTSP client to the RTSP server. And, a POSITA would have found it obvious that the bandwidth available to the client included in the request is the client's estimate of the communication bandwidth available between the RTSP client and the RTSP server because the bandwidth of the connection between the client and the server is what limits the ability to reproduce a stream in real-time. In other words, if the bandwidth is too low, then the client cannot receive data from the server to reproduce the stream in real-time, which leads to the pause in playback caused by buffering that is familiar to users of streaming media. Ex. 1003 ¶125. A POSITA would have been knowledgeable of the features of the Real Time Streaming Protocol and would have known how to implement the standard because it was issued by the Internet Engineering Task Force, which is a well-known body that issues standards relevant to Internet networking, communications, and application such as digital media streaming. *See supra* p. 47 (describing Ex. 1008, [0002]-[0003], Ex. 1009); Ex. 1003 ¶126.

Second, a POSITA would have found that this limitation is suggested by Shaw's teachings relating to multi-rate stream encoding. As described above (*see supra* pp.14-15, 33-33; Ex. 1003 ¶¶29, 65), it was common for content owners to encode streaming media at multiple encoding bit rates so that users with faster connections can receive a higher-quality stream (i.e., a stream encoded at a higher

bit rate), while users with slower connections can still receive the stream albeit at a lower-quality level (i.e., a stream encoded at a lower bit rate). Ex. 1005, 1:37-40, 1:47-58. A POSITA would have understood from this teaching that it is advantageous for the streaming client to inform the streaming server of the communication bandwidth between the streaming client and streaming server so that the streaming server can choose the encoding with the highest encoding bit rate that can be delivered in real-time given the available bandwidth. Ex. 1003 ¶127.

Finally, to the extent Patent Owner argues that Shaw does not sufficiently teach communicating information of the communication bandwidth with the second system, it would have been an obvious improvement based on Barnes' teachings of determining and communicating the bandwidth of a network connection. Barnes teaches that a client can determine the communication bandwidth (such as to an available network) by requesting communication and establishing communication with the available network. Ex. 1004, [0073]; Ex. 1003 ¶128. Given that Barnes' portable device determines the communication bandwidth of the second system (available network) "during the requested communication", a POSITA would have found it obvious that the portable system and the second system communicate information of the communication bandwidth with the second system. Ex. 1003 ¶129.

6. Dependent Claims 5, 10

5. The method of claim 1, where the portable system automatically performs, without user interaction, said determining, said using, and said delivering the digital media content at the higher quality level to the user.
10. The portable system of claim 6, where the at least one component is operable to automatically perform, without user interaction, said determining, said using, and said delivering the digital media content at the higher quality level to the user.

Claims 5 and 10 depend from claims 1 and 6, respectively. The combination of Barnes and Shaw renders this limitation obvious in based on Shaw's teachings of an enhanced client media player. Ex. 1003 ¶130.

Shaw teaches a client media player that automatically performs, without user interaction, said determining, said using, and said delivering the digital media content at the higher quality level to the user because Shaw teaches a client player that *periodically* looks for another available, better source (server) to deliver the streaming content at a higher quality level to the user. *See* Ex. 1005, 3:62-66 (“*Periodically*, the client player code repeats the DNS SRV query during playback to *determine whether there is a better source* for the stream. If so, the player is controlled *to switch to the better stream source ‘on the fly’* if appropriate to maintain and/or enhance the quality of service.”) (emphasis added), 9:14-19. A POSITA would have understood that this periodic teaching would include the

system automatically, without user interaction, performing Shaw's method of determining the best server from which to obtain a stream. Ex. 1003 ¶131.

Shaw also teaches the client media needs to continually keep looking for a better media source (server) because "the 'best' [server] can change very quickly given the relatively large size of most streams (and the near-infinite size of all live streams)." Ex. 1005, 3:33-36. Therefore, Shaw teaches that "[i]t would be desirable to enable a client player to identify a best server *dynamically* and, when appropriate, to enable the player to selectively switch from one server to another during the process of downloading and outputting a given stream or other large file." *Id.*, 3:40-44. A POSITA would have understood that Shaw's dynamic teaching would include the system performing the search, determination of the best server, and switching the stream to the best server to occur without user interaction. Ex. 1003 ¶132.

Shaw thus teaches that the client player be "enabled" to "periodically" (*see id.*, 3:62-64, Abs., FIG. 4 (step 408)) and "dynamically," and without user assistance to such determining in claim limitations [1c] and [6c], and such using and delivering in claim limitations [1d] and [6d]. Ex. 1003 ¶133.

VI. CONCLUSION

For the foregoing reasons, Petitioner requests *inter partes* review and that the challenged claims be canceled as unpatentable.

VII. MANDATORY NOTICES AND FEES

Real Party In Interest: The real parties-in-interests here are Netflix, Inc., and Netflix Streaming Services, Inc. No other parties directed, controlled, or funded this Inter Partes Review proceeding (IPR).

Related Matters: The '992 patent is the subject of the following civil actions: *Broadcom Corp. et al. v. Netflix, Inc.*, Case No. 3:20-cv-04677-JD (N.D. Cal.) transferred from *Broadcom Corp. et al. v. Netflix, Inc.*, Case No. 8:20-cv-00529 (C.D. Cal.).

Lead and Backup Counsel: Pursuant to 37 C.F.R. §42.8(b)(3) and 42.10(a), Petitioner designates Harper Batts (Reg. No. 56,160) as lead counsel and Chris Ponder (Reg. No. 77,167) and Jeffrey Liang (Reg. No. 69,043) as back-up counsel, each of Sheppard, Mullin, Richter & Hampton LLP.

Service Information: Petitioner consents to service by electronic mail addressed to:

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Petitioner's counsel may also be served by mail or hand delivery at Sheppard, Mullin, Richter & Hampton LLP, 379 Lytton Ave., Palo Alto, CA 94301. Petitioner's counsel may be reached by telephone at (650) 815-2673 and by facsimile at (650) 815-4668.

Fees: The Office is authorized to charge fees for this Petition to Deposit
Account 50-4561, Ref. 64MK-316262 (992).

Respectfully submitted,

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CLAIM APPENDIX

1[a]. In a portable system, a method for providing a digital media service to a user, the method comprising:

[1b] delivering digital media content having a current quality level to a user;

[1c] determining that a network connection with a second system is available and is characterized by a communication bandwidth that is high enough to provide the digital media content to the user at a quality level higher than the current quality level;

[1d] using the network connection to obtain the digital media content at the higher quality level from the second system; and

delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

2. The method of claim 1, where the digital media content is video media.

3. The method of claim 1, where the digital media content is audio media.

4. The method of claim 1, wherein said determining comprises communicating information of the communication bandwidth with the second system.

5. The method of claim 1, where the portable system automatically performs, without user interaction, said determining, said using, and said delivering the digital media content at the higher quality level to the user.

6[a]. A portable system for providing a digital media service to a user, the portable system comprising:

at least one component operable to, at least:

[6b] deliver digital media content having a current quality level to a user;

[6c] determine that a network connection with a second system is available and is characterized by a communication bandwidth that is high enough to provide the digital media content to the user at a quality level higher than the current quality level;

[6d] use the network connection to obtain the digital media content at the higher quality level from the second system; and

deliver the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

7. The portable system of claim 6, where the digital media content is video media.

8. The portable system of claim 6, where the digital media content is audio media.

9. The portable system of claim 6, where said at least one component is operable to determine that a network connection is available and characterized by a communication bandwidth that is high enough to provide the digital media service to the user at a quality level higher than the current quality level by, at least in part,

operating to communicate information of the communication bandwidth with the second system.

10. The portable system of claim 6, where the at least one component is operable to automatically perform, without user interaction, said determining, said using, and said delivering the digital media content at the higher quality level to the user.

11[a]. In a portable system, a method for providing a digital media service to a user, the method comprising:

[11b] delivering digital media content having a current quality level to a user;

[11c] communicating with a second system regarding communication bandwidth of a network connection with the second system;

[11d] determining, based at least in part on said communicating, that the network connection is available and characterized by at least a minimum determined communication bandwidth;

[11e] in response to at least said determining, utilizing the network connection to receive the digital media content at a quality level higher than the current quality level; and

delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

12. The method of claim 11 where the digital media content is video media.

13. The method of claim 11, where the digital media content is audio media.

14. The method of claim 11, where the portable system automatically performs, without user interaction, said communicating, said determining and said utilizing.

16[a]. A portable system for providing a digital media service to a user, the portable system comprising:

at least one component operable to, at least:

[16b] deliver digital media content having a current quality level to a user;

[16c] communicate with a second system regarding communication bandwidth of a network connection with the second system;

[16d] determine, based at least in part on said communicating, that the network connection is available and characterized by at least a minimum determined communication bandwidth;

[16e] in response to at least said determining, utilize the network connection to receive the digital media content at a quality level higher than the current quality level; and

deliver the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

17. The portable system of claim 16, where the digital media content is video media.

18. The portable system of claim 16, where the digital media content is audio media.

19. The portable system of claim 16, where the at least one component is operable to automatically perform, without user interaction, said communicating, said determining and said utilizing.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on December 14, 2020, true and correct copies of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 8,270,992 and Exhibits 1001-1009 were served in its entirety on the Patent Owner at the following addresses of record as listed on PAIR via Priority Mail Express®:

Foley & Lardner LLP/ Broadcom Corporation
3000 K Street N.W., Suite 600
Washington DC 20007-5109

The undersigned certifies that true and correct copies of the Petition for *Inter Partes* Review of U.S. Patent No. 8,270,992 and Exhibits 1001-1009 were also sent via electronic mail to the attorneys of record for Plaintiff in the concurrent litigation matter(s):

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**CERTIFICATE OF COMPLIANCE WITH
TYPE-VOLUME LIMITATION, TYPEFACE REQUIREMENTS,
AND TYPE STYLE REQUIREMENTS**

1. This Petition complies with the type-volume limitation of 14,000 words, comprising 13,903 words, as counted using the Microsoft Word software that was used to prepare this paper, excluding the parts exempted by 37 C.F.R. § 42.24(a).

2. This Petition complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word 2016 in 14-point Times New Roman.

Respectfully submitted,

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