

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.

Inter Partes Review No. IPR2021-00303

U.S. Patent No. 8,270,992 B2

PATENT OWNER'S RESPONSE

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1005	U.S. Patent No. 7,299,291 to Shaw ("Shaw")
1006	Schulzrinne et al., Real Time Streaming Protocol (RTSP), RFC2326, IETF April 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 Publication No. 2001/0025378 A1 to Sakamoto et al. ("Sakamoto")
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Patent Owner Avago Technologies International Sales Pte. Limited ("Avago" or "Patent Owner") hereby respectfully submits this Response to the Petition for *Inter Partes* Review, Case No. IPR2021-00303 (the "Petition") challenging certain claims of U.S. Patent No. 8,270,992 (the "'992 Patent"). This filing is timely under the Board's June 25, 2021 Scheduling Order (Paper 8) and the Parties' Joint Notice of Stipulation to Change Due Dates (Paper 9).

I. INTRODUCTION

The Petition challenges the validity of Claims 1-14 and 16-19 of the '992 Patent (the "Challenged Claims"). The Petitioner has failed its burden of proving a proposition of unpatentability of any Challenged Claim by a preponderance of the evidence as required by 35 U.S.C. § 316(e) for several independent and distinct reasons.

First, with respect to independent Claims 1, 6, 11, and 16, Petitioner fails to demonstrate that the combination of Barnes (Ex. 1004) and Shaw (Ex. 1005) discloses a novel system whereby the quality of digital media content provided to a user can be improved. While the Challenged Claims relate to the improvement of a digital media service to a user, the Challenged Claims seek to improve this service in part by increasing the quality of the media content. In contrast, the alleged combination of Barnes and Shaw, assuming *arguendo* that a person of ordinary skill in the art ("POSITA") would make such a combination, would seek to improve a

digital media service by delivering the same media content using a better **network connection**. This distinction between improving a digital media **service** by increasing the quality of the media **content** (as opposed to by using a better **network connection**) was expressly amended into the Challenged Claims by the Applicant during prosecution. This clear distinction between the Challenged Claims and the alleged combination of Barnes and Shaw establishes many significant differences between the limitations of the Challenged Claims and the alleged prior art for the reasons set forth below.

Second, because Claims 2-5, 7-10, 12-13, and 17-18 all depend from an independent Claim, which is valid over the alleged combination of Barnes and Shaw, these dependent Claims are valid for at least the same reasons. Moreover, although the Petition purports to challenge dependent Claims 14 and 19, the Petitioner did not provide any evidence whatsoever in the Petition to support its alleged position. As a result, the Board should uphold the validity of Claims 14 and 19 for this additional reason.

II. BACKGROUND

A. Procedural History

Broadcom Corporation ("Broadcom") and Avago filed a lawsuit against Petitioner for infringement of the '992 Patent and eleven other patents. *See Broadcom Corp. et al. v. Netflix, Inc.*, No. 8:20-cv-00529 (C.D. Cal. 2020). The

case was subsequently transferred to the N.D. Cal. on July 14, 2020, No. 3:20-cv-04677 (N.D. Cal. 2020). Petitioner filed the Petition against the Challenged Claims on December 14, 2020. The Board entered its Decision instituting the *Inter Partes* Review (Paper 7) on June 21, 2021. On September 14, 2021, the N.D. Cal. Court granted Netflix's motion to dismiss the '992 Patent from the case based on patent ineligibility grounds under 35 U.S.C. § 101 and granted Broadcom leave to amend its complaint to assert additional allegations concerning the '992 Patent. *See* Ex. 2004 (Order Re Netflix Motion to Dismiss) at 2.

The '992 Patent has not been previously asserted in any related lawsuits.

B. The '992 Patent

1. Overview

The '992 Patent is directed to a portable system and a method for providing a digital media service to a user. The quality of a digital media service in the early 2000s was limited by various constraints. The title of the '992 Patent aptly suggests that a solution to overcome some of these constraints is through "automatic quality of service based resource allocation." As recited in the Challenged Claims and explained in detail in the specification, the '992 Patent teaches the delivery of a digital media content to a user using a portable system and a second system (*e.g.*, a personal computer ("PC")). *See* Ex. 2002 (AlRegib Decl.), ¶ 24.

Specifically, as taught by the '992 Patent and recited in the Challenged Claims, the portable system is first delivering digital media content to a user at a current quality level. The portable system then determines if it can deliver the same digital media content at a higher quality level to the user using a second system. This process includes determining that (1) the second system has the digital media content that is at a higher quality level than the current quality level of the digital media content currently being provided to the user and (2) a network connection between the portable system and the second system is available and has enough bandwidth to provide the digital media content at the higher quality level to the user. Once this determination has been made, the portable system uses the network connection with the second system to obtain the digital media content at the higher quality level. Finally, the portable system delivers the digital media content at the higher quality level to the user. *See* Ex. 2002, ¶ 25.

Fig. 5 of the '992 Patent, as reproduced below, provides an exemplary scenario in which the portable system is a personal digital assistant ("PDA") (515) and the second system is a desktop computing system (555).

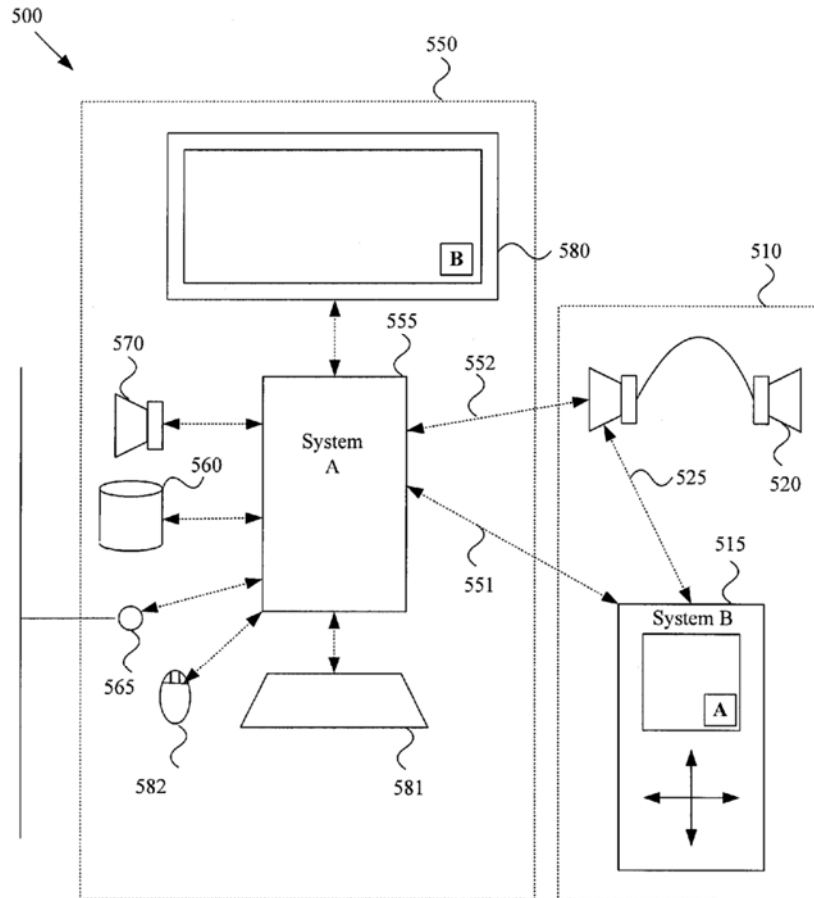


Figure 5

Ex. 1001 ('992 Patent), Fig. 5.

In the exemplary embodiment in Fig. 5, the portable system provides a digital media service to the user. "A 'service' is generally a function performed by the first system [the portable system] for the ultimate benefit of the user." *Id.* at 3:16-18. Constraints with the portable system (*e.g.*, such as storage size, processing capability, communication capability, software application, and information access) can limit the quality of digital media service that the portable system can provide the user. *See, e.g., id.* at 7:16-29, 11:32-54, 12:15-49; *see also* Ex. 2002, ¶ 27. For

example, due to a constraint in storage, the portable system "may have decided to store MP3 information in the PDA . . . memory in a highly compressed state, thereby trading audio quality for the ability to store more music." Ex. 1001 at 4:55-58; *see also* Ex. 2002, ¶ 28. Obtaining higher quality digital media content from a second system (*e.g.*, CD-quality music stored by a desktop computing system 555 (*see* Ex. 1001 at 6:43-44)) may allow the portable system to improve the quality of the digital media content provided to the user (*e.g.*, enabling the user to listen to a CD-quality version of a song rather than the highly compressed MP3 version of the song locally stored on the PDA). *See* Ex. 2002, ¶ 29.

With respect to this situation where the same digital media content can have two different quality levels, Petitioner's expert, Dr. Harley Myler, acknowledged the following:

Q Okay. I have it highlighted on the screen. Okay. So my question to you is this: In this example, which I've highlighted on the screen, which is line -- Column 6, line 40 through 49, it talks about MP3 audio information being provided to a user, and then -- from the PDA 515 -- but then realizing that there's actually CD quality music, same -- same music information but different format, stored on the second device; correct?

A Yes.

Q Okay. So this -- and this is a question so is this an example of where you have digital media content at a first quality level, MP3, and

then the same digital media content, but at a higher quality level with the CD quality formatting?

A Yes.

Q Okay. So it's the same music, but in two different quality formats, for lack of a better description?

A It's not the same digital media content. It's the same song and -- but it has different quality, and it has different encoding. They are not the same they are from a different place. I mean, that makes perfect sense to me.

Ex. 2003 (Myler Dep. Tr.) at 223:14-224:13 (emphasis added). With respect to the meaning of the term "digital media content," Dr. Myler testified that digital media content is the "media" itself:

Q What's your understanding of the term "digital media content"?

A I think we talked about this earlier, but digital media content is media. And we have examples of media, which are video, audio, even text. And digital implies that it's digitized, and content implies that it has some sort of information content. So digital media content can be something like an MP3 file, or it can be an MPeg. It could be a Word document.

Id. at 225:9-18 (emphasis added); *accord* Ex. 2002, ¶ 30.

To determine whether the higher quality digital media content can be obtained from system 555 and delivered to the user on PDA 515 as shown in Fig. 5 above, these two systems exchange various information including information

concerning relative processing and communication capabilities. For example, "the PDA 515 and the desktop computing station 555 may communicate information of audio decoding capability" and "the PDA 515 and desktop computing system 555 may communicate information of communication capability." Ex. 1001 at 5:18-20, 5:44-45; *see generally id.* at 5:18-52. As part of this determination, the sufficiency of the network connection between the two systems is evaluated because "access to high quality information over a communication network may be of little value in certain scenarios if the communication network is slow or unreliable." *Id.* at 6:27-30; *see also* Ex. 2002, ¶ 31.

Fig. 4 of the '992 Patent illustrates an exemplary system that "implements quality of service based resource allocation and utilization," which, in the above example, includes the determination of whether to obtain the higher quality digital media content from system 555 for the user of PDA 515. Ex. 1001 at 21:8-9; *see also* Ex. 2002, ¶ 32.

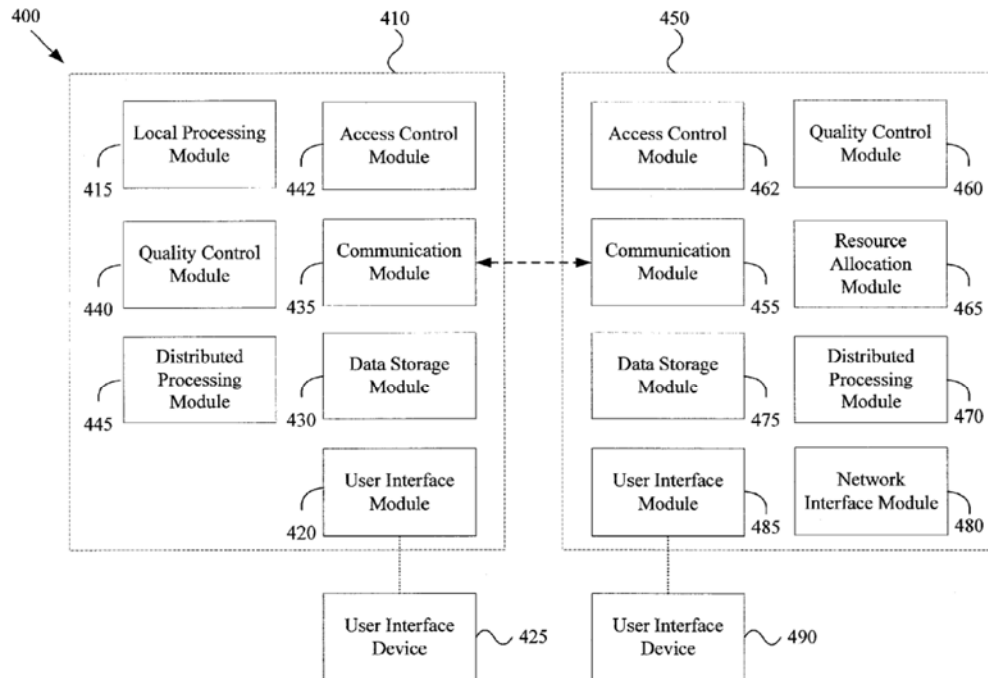


Figure 4

Ex. 1001, Fig. 4.

The quality control module (440) of the portable system (410) and the quality control module (460) of the second system (450) may determine whether utilizing resources from the second system will increase the quality at which the current **service** is being provided to the user. *See id.* at 24:4-19. Higher bitrate or file size alone does not automatically equate to a higher quality **service** level for the user, but rather other quality metrics are also important, including audio/video output quality, response to user input, and the number of information consumption options available to a user. *See id.* at 22:16-23; *see also* Ex. 2002, ¶ 33.

2. Challenged Claims

The Challenged Claims include four independent claims: Claims 1, 6, 11, and 16. The remaining Challenged Claims depend on one of these four independent claims. Specifically, Claims 2-5 depend from Claim 1; Claims 7-10 depend from Claim 6; Claims 13-14 depend from Claim 11; and Claims 17-19 depend from Claim 16.

Claim 1 is directed to a method and Claim 6 is directed to a system to perform that method. Claim 1 states as follows:

1. In a portable system, a method for providing a digital media service to a user, the method comprising:
 - delivering digital media content having a current quality level to a user;
 - 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;
 - 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.

Ex. 1001 at 26:29-43; Ex. 2002, ¶ 36.

To better understand the interrelationship between the various elements of Claim 1, the following is a chart where each element of Claim 1 is annotated to highlight which claim limitation(s) relate to each element.

Preamble [1a]	In a portable system, a method for providing a digital media service to a user, the method comprising:
First Delivering Limitation [1b]	delivering digital media content having a current quality level to a user;
Determining Limitation [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;
Using Limitation [1d]	using the network connection to obtain the digital media content at the higher quality level from the second system; and
Second Delivering Limitation [1d]	delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

Ex. 1001 at 26:29-43 (annotated) (emphasis added); Ex. 2002, ¶ 37.

Similarly, Claim 11 is directed to a method and Claim 16 is directed to a system to perform that method. Claim 11 states as follows:

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

- delivering digital media content having a current quality level to a user;
- communicating with a second system regarding communication bandwidth of a network connection with the second system;
- 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;
- 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.

Ex. 1001 at 27:21-37; Ex. 2002, ¶ 38.

As shown below, Claim 11 has the same elements as Claim 1.

Preamble [11a]	In a portable system, a method for providing a digital media service to a user, the method comprising:
First Delivering Limitation [11b]	delivering digital media content having a current quality level to a user;
Communicating Limitation [11c]	communicating with a second system regarding communication bandwidth of a network connection with the second system;
Determining Limitation [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;
Utilizing Limitation [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
Second Delivering Limitation [11e]	delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

Ex. 1001 at 27:21-38 (annotated) (emphasis added); Ex. 2002, ¶ 39.

Therefore, all the Challenged Claims include the following elements:

- i) a portable system and a second system;

- ii) a digital media service;
- iii) a user;
- iv) digital media content with a current quality level and a quality level higher;
and
- v) a network connection with a communication bandwidth that is high enough
/ a minimum determined communication bandwidth.

As shown above, each element of each claim limitation is defined the first time it is cited in the claim (*e.g.*, "digital media content" and "a current quality level"). Then, each time such elements are mentioned subsequently, those elements refer to the earlier defined elements using the term "the" (*e.g.*, "the digital media content" and "the current quality level"). *Id.* (emphasis added). This use of defined elements in a claim is the application of the well-known principle of "antecedent basis." *See Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1356-57 (Fed. Cir. 1999) (holding that "[t]he presence of that identical language clearly indicates that '**a discharge rate**' in clause [b] is the same as '**the discharge rate**' in clause [d], both referring to the rate (in units of weight per unit of time) that material is discharged from the common hopper to the material processing machine. In addition, that conclusion avoids any **lack of antecedent basis** problem for the occurrence of 'the discharge rate' in clause [d].") (emphasis added).

3. Prosecution History

During the prosecution of the '992 Patent, the Applicant specifically amended the Challenged Claims to make clear that the terms "a current quality level" and "a quality level higher" refer specifically to the digital media **content** and not to the digital media **service** generally. In particular, the Applicant amended Claim 38 (which was renumbered to Claim 1 upon allowance) as follows:

38. (Currently Amended) In a portable system, a method for providing a digital media service to a user, the method comprising:

~~providing a~~ delivering digital media content having a current quality level ~~service~~ to a user ~~at a current quality level~~;

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 ~~service~~ content to the user at a quality level higher than the current quality level;

and

~~in response to at least said determining, utilizing the network connection to provide the digital media service to the user at a quality level higher than the current quality level~~;

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.

Ex. 1002 (File Hist.) at 43 (replacing "providing a digital media **service** to a user at a current quality level" with "delivering digital media **content** having a current quality level to a user" in the Delivering Limitation and replacing "**service**" with

"**content**" in the Determining Limitation) (emphasis added); *see also id.* at 46 (containing similar amendments for Claim 48 (which became Claim 11)); Ex. 2003 at 228:23-229:4 (agreeing that Claim 38 in the file history of the '992 Patent became Claim 1). Therefore, based on these claim amendments, there can be no question that the terms "a current quality level" and "a quality level higher" refer specifically to the digital media **content**.

While the Challenged Claims unquestionably require "a network connection" in providing the "digital media service," this network connection must only have "a communication bandwidth that is high enough" (Claims 1, 6) or "a minimum determined communication bandwidth" (Claims 11, 16) to obtain/receive the digital media content at the higher quality level. *See* Ex. 1001 at 26:29-43, 27:21-37. Therefore, the Challenged Claims improve the overall quality of the digital media **service** to a user on a portable system by obtaining higher quality digital media **content** from a second system using a network connection that has a "high enough" or "minimum" bandwidth to obtain this higher quality content. *See* Ex. 2002, ¶ 45.

Indeed, the Applicant specifically relied on this distinction in traversing the Examiner's initial rejection of the Challenged Claims. In its March 16, 2012 Response, the Applicant argued that the prior art reference (Jagadeesan), cited by the Examiner, disclosed improving a digital media service by improving the

communication "link quality" – not the quality of the digital media content.

Specifically, the Applicant argued:

However, though Jagadeesan may disclose a mobile station switching between communication links based on link quality, the source of the content transmitted across the communication links (i.e., the voice data) remains the same. Indeed, Jagadeesan specifically states '[a] handoff of the existing call may occur' if the link quality of a second communication link is greater than the link quality of the communication link currently used by the mobile station. (Jagadeesan, paragraph [0035], Emphasis added). That is, in Jagadeesan, prior to transmission by either the WLAN or the cellular network, the voice data is the same. And as a whole, Jagadeesan fails to disclose or suggest obtaining voice data from another source, let alone obtaining digital media content at a higher quality level from the second system, as recited in claim 38.

Ex. 1002 at 50 (emphasis added); *see also id.* (distinguishing the Kayama reference by arguing 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**, as recited in claim 38") (emphasis added); *accord* Ex. 2002, ¶ 46.

In reviewing the Applicant's claim amendments and supporting arguments, the Examiner agreed with Applicant's position and allowed the Challenged Claims. The Examiner stated in the Notice of Allowance that "Claims 38-57 are allowed for

the reasons as set forth in applicant's response filed on 3/16/12." Ex. 1002 at 21; *accord* Ex. 2002, ¶ 47.

In his deposition, Dr. Myler agreed that the Applicant based its argument on the difference between the quality of the digital media content and the quality of the network connection.

Q Okay. So the Applicant here is making a distinction between media content and network communication, correct, or network connection?

MR. PONDER: Objection. Form.

THE WITNESS: Oh, right. Yes, okay. So -- so the media content, it's the same file, let's say, and it's coming -- and Jagadeesan is saying you're switching between communication links picking the better link quality to get the same data.

By MR. YOUNG:

Q Correct. That's your understanding of that argument?

A Yes.

Ex. 2003 at 230:16-231:3 (emphasis added).

C. Petitioner's Cited References

Although Petitioner cites several references in the Petition, it relies on the following two references for its sole Ground of invalidity:

- U.S. Patent Publication No. 2003/0065805 to Barnes ("Barnes") (Ex. 1004); and

- U.S. Patent No. 7,299,291 to Shaw ("Shaw") (Ex. 1005).

1. Barnes

Barnes discloses a network-connected mobile phone or PDA (*i.e.*, device 101) that has a wide range of features, the majority of which have nothing to do with the Challenged Claims. *See, e.g.*, Ex. 1004 (Barnes), ¶¶ 0035-39. In fact, Barnes is directed primarily to the use of such a device for "providing location based services, mobile e-commerce, and other functions." *Id.*, ¶ 0003. This focus is reflected by Barnes' title: "System, method, and computer program product for providing location based services and mobile e-commerce." *Id.* at 1. As such, it is unsurprising that Barnes provides virtually no disclosure related to the functionality of the Challenged Claims, which concerns improving the level of digital media content quality delivered to the user under the constraints of a portable system. To the extent Barnes discloses media content functionality at all, that functionality is incidental to the purpose of Barnes' disclosure: network connectivity related to location-based services and electronic commerce.¹ *See* Ex. 2002, ¶¶ 49-50.

¹ By way of example, while Barnes includes 537 numbered paragraphs of disclosure, fewer than fifteen of these paragraphs have anything to do with receiving digital media content, and only one paragraph discusses switching communication

Indeed, when asked to provide an overview of the portions of Barnes that he relied on for his opinions in this matter, Dr. Myler testified as follows:

Q Okay. So I know Barnes has a lot of disclosure in it. But from the disclosure that you rely on for your opinions in this matter, **can you give a high-level description of what a POSITA would understand Barnes to disclose, again, with respect to the functionality that you're relying on from Barnes in your opinions in this case?**

A Well, Barnes -- a POSITA looking at Barnes would see it, of course, as the title -- of course, this is an application. It doesn't mean they actually did it. "System method and computer program product for providing location-based services and mobile E-commerce." So the POSITA is going to look at this and say, first of all, **it's a mobile system, and we're looking at location-based services, which can be important when moving around in a network and when moving, period, in E-commerce, which is very complicated and involves a lot of different kinds of data and media.** And if you look at the -- Figure 1 would basically show them, okay, this is -- we've already concluded that it's -- it's a portable system; it's got memory, a CPU, and a processor and IOs, so it's a little hand-held computer. **It has a communications module, which fits with the mobile E-commerce and location-based services.** And it also includes a location module, which would be some kind of GPS thing, and, let's see, a recorder, data

networks. *See id.*, ¶ 0074; *see also id.*, ¶¶ 0039-40, 0045-46, 0063, 0066-69, 0072-75, 0117, 0378.

management module, authentication module, which ties into the networking idea. And without looking at the, you know, going in and reading through their specific description, an image module for displaying pictures possibly, a commerce module, and application modules. And this device has a display, user input means, and then some sort of audio out, audio/visual display.

Ex. 2003 at 115:25-117:11 (emphasis added). Noticeably absent from this lengthy summary of Barnes – in which he was specifically asked to address the portions of Barnes that he relied on for his opinions in this matter – Dr. Myler never mentioned anything related to the quality of digital media content delivered to the user on the portable device disclosed by Barnes. Thus, as plainly demonstrated by Dr. Myler's testimony, improving the quality of digital media content provided to a user is simply not disclosed in Barnes.

Nevertheless, Petitioner relies on Barnes' disclosure of a process to determine when to switch to a different communication network. *See* Ex. 1004, ¶ 0074; *accord* Pet. at 12-13. This network switching process consists of the following factors:

1. "[C]hanges 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." Ex. 1004, ¶ 0074.

- Dr. Myler confirmed that this network switching condition addresses changes in network conditions. *See* Ex. 2003 at 130:15-131:25.
2. "[T]he 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)." Ex. 1004, ¶ 0074. Dr. Myler confirmed that this network switching condition addresses the situation where a user decides to change the type of media content consumed on device 101. For example, the user may elect to switch from audio content to video content, which may require a network with a higher bandwidth. *See* Ex. 2003 at 132:1-19.
 3. "[T]he anticipated request of the user (e.g., based on the user starting a particular application such as a video player)." Ex. 1004, ¶ 0074. Dr. Myler confirmed that this network switching condition addresses the situation where the device anticipates a change of use by the user (e.g., the user starts up a video player and the device anticipates that it will need a network with a higher bandwidth). *See* Ex. 2003 at 133:2-12.
 4. "[C]hanges in network availability (e.g., a new network becoming available)." Ex. 1004, ¶ 0074. Dr. Myler confirmed that this network switching condition addresses the situation where a new network comes

into range of the device and may prompt device 101 to switch networks. *See* Ex. 2003 at 133:13-20.

5. "[C]hanges in conditions of the second network (e.g., more bandwidth or less noise)." Ex. 1004, ¶ 0074. Dr. Myler confirmed that this network switching condition addresses the situation where a second network may improve (e.g., increased bandwidth or decreased noise), which may provide device 101 with a reason to switch networks. *See* Ex. 2003 at 133:21-134:14.
6. "[T]he available capacity or relative available capacity (e.g., how full to capacity a network is)." Ex. 1004, ¶ 0074. Dr. Myler confirmed that this network switching condition addresses the situation where one network may have more available bandwidth than another network. *See* Ex. 2003 at 134:15-25.
7. "[T]he communication capabilities of the device." Ex. 1004, ¶ 0074. Dr. Myler confirmed that this network switching condition addresses the various communication capabilities of the handheld device. *See* Ex. 2003 at 135:1-25.
8. "[T]he 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. Dr. Myler

confirmed that this network switching condition addresses the availability of the various networks that device 101 could connect with. *See* Ex. 2003 at 136:1-137:2.

As this list of factors, as well as Dr. Myler's accompanying testimony, demonstrates, the majority of Barnes' "network switching conditions" relate to attributes of the networks that device 101 can connect with (*i.e.*, conditions 1, 4, 5, 6, and 8). *See* Ex. 2002, ¶¶ 51-52. While conditions 2 and 3 relate to media content generally, and condition 7 addresses capabilities of device 101, none of these conditions addresses the quality of the digital media content displayed on device 101. *See id.* Importantly, in his extensive testimony on Barnes' network switching conditions, Dr. Myler never once mentioned that any of these conditions relate to switching a network connection to improve the quality of the digital media content being consumed by the user. Indeed, Dr. Myler never used the word "quality" in his entire description of the network switching conditions in paragraph [0074] of Barnes. *See id.* at 130:15-137:2. Moreover, Dr. Myler also provided extensive testimony on paragraphs [0069]-[0073] of Barnes – paragraphs that the Petitioner relies heavily on in its Petition – and never mentioned the quality of the digital media content provided to the user on device 101. *See id.* at 119:20-129:16; *accord* Ex. 2002, ¶ 52.

Thus, while Barnes discloses both a portable device and the concept of switching networks, Barnes lacks any disclosure that would render the Challenged Claims invalid for the reasons discussed in detail below.

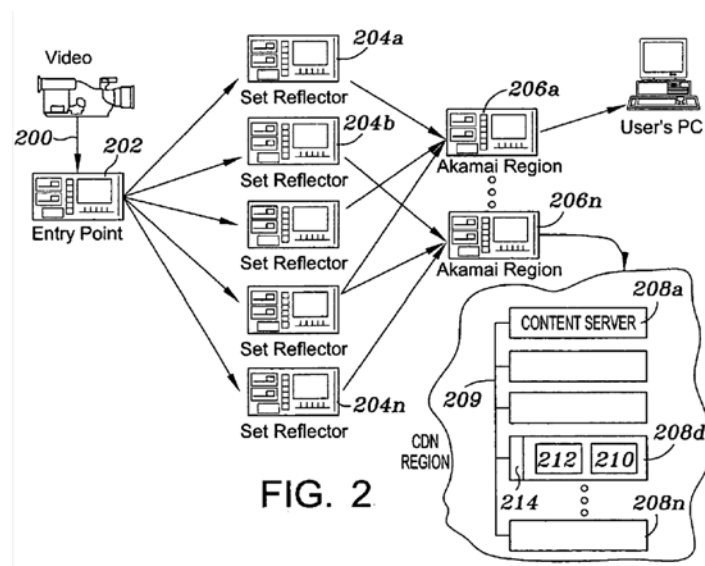
2. Shaw

In contrast to the '992 Patent, which focuses on delivering higher quality content on a portable system, Shaw is directed to an enhancement of a client media player for finding the best server – and selectively switching servers as necessary – for a stream of digital media. *See* Ex. 1005 (Shaw) at 3:32-39. "The present invention relates generally to high-performance, fault-tolerant content delivery in a content delivery network (CDN)." *Id.* at 1:13-15. "A CDN is a network of geographically distributed content delivery nodes that are arranged for efficient delivery of digital content (e.g., Web content, streaming media and applications) on behalf of third party content providers." *Id.* at 2:40-43. The "stream" is the media content transmitted over the network connection (*i.e.*, the stream "received from the first server and rendered on the media player"). Ex. 2003 at 109:22-25; *see also* Ex. 2002, ¶ 54.

To better understand what Shaw teaches with respect to the material issues in this matter, it is important to first discuss the general technology applicable to Shaw's invention. Specifically, Shaw is an invention owned by Akamai Technologies, Inc. ("Akamai"). Ex. 1005 at 1. At the time Akamai filed Shaw, Dr. Myler explained

that Akamai "provide[d] networking content delivery services." Ex. 2003 at 22:5-19. Dr. Myler further explained "[i]n fact, this patent, as far as I recall – actually, throughout the patent it describes the various specific Akamai Technologies devices so they were basically patenting their CDN." *Id.* Dr. Myler agreed that Akamai's technology, including the Shaw patent, acted as a "conduit, if you will, between content – content creators and content consumers." *Id.* at 22:20-23:1; *see also* Ex. 2002, ¶ 55.

To provide digital media content more effectively to consumers, the disclosed CDN takes a "broadcast stream 200" into the network at a "CDN entry point 202" and then distributes that content through a series of "reflectors" 204a-n to regional servers 206a-n, which contain a series of edge nodes 208a-n. *See* Ex. 1005 at 5:66-6:20. FIG. 2 shows each of these elements below.



Id., FIG. 2.

As Shaw explains, "FIG. 2 is a simplified diagram illustrating how live streaming can be further enhanced by having the CDN send **multiple copies of the same stream** over different routes from a CDN entry point to the optimal streaming server at the edge of the Internet." *Id.* at 4:23-26 (emphasis added); *see also id.* at 2:27-37 (explaining that in a traditional CDN "**a single source stream can be replicated into thousands or more identical copies**") (emphasis added). *See* Ex. 2002, ¶¶ 56-57.

In describing the system set forth in FIG. 2, Dr. Myler acknowledged that:

Q Okay. So in this particular figure – and I'm going to try to summarize it, and you can tell me if this is an accurate summary or not -- some media content is created; it goes to an entry point; **copies -- identical copies of that media** gets sent to the reflectors; the reflectors then send them to the individual regions; and then within each region, **those copies** get put on various edge servers. **So the content from a single source gets distributed in identical copies throughout the network and end up on these various edge servers; is that a fair summary?**

MR. PONDER: Objection, form.

THE WITNESS: **I'm going to say that's a fair high-level summary of -- of what's happening here.**

Ex. 2003 at 33:17-34:7 (emphasis added).

Because the same content is on the various servers throughout the network, Shaw does not teach switching networks to obtain higher content quality, but rather switching to get the same content on a better network connection. *See* Ex. 2002, ¶ 58. Indeed, Shaw explains that "[t]he present invention provides a method for enabling a client player to identify a best server dynamically and, in addition, to **selectively switch to that server to receive the stream or portions thereof**" (*i.e.*, receive the same stream from another server). Ex. 1005 at 6:57-61 (emphasis added). In one example, Shaw teaches that "[a]s appropriate, 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.* at 9:63-66 (emphasis added). *See* Ex. 2002, ¶¶ 58-60. With respect to the stream switching techniques taught in Shaw, Dr. Myler testified as follows:

Q Okay. So if you -- so I think in this example, if you had a copy of the media, digital media, Server A, and you had another copy of the same copy on Server B, and you were streaming on Server A, and the viewer was receiving the packets and watching the video, and the client player in Shaw decides to switch to the other server, Server B, using this stream switch process, **it would switch from watching the copy on Server A to watching the same copy on Server B**, and then it would do this process to match up the packets so that the viewer would have a rela -- a substantially seamless switch. **And they -- he or she would continue to watch the show but from a different server; is that fair?**

MR. PONDER: Objection to form.

THE WITNESS: **Basically, I think that's what they were getting at with this.**

Ex. 2003 at 46:13-47:4 (emphasis added); *see also id.* at 44:15-47:4 (containing testimony concerning Column 9, lines 63-66, of Shaw).

Shaw uses FIGS. 3 and 4 to further describe its server connection and switching process. Shaw states that "FIG. 3 illustrates a representative client browser having a streaming media client player that is enhanced to include the functionality of the present invention." Ex. 1005 at 4:27-29. FIG. 3 is a representative client browser that is enhanced with the invention of Shaw – a enhancement that "comprises several processes, namely, a DNS lookup process 304, a server testing process 306, a decision process 308, and a stream switch process 310." *Id.* at 7:11-14 (emphasis added).

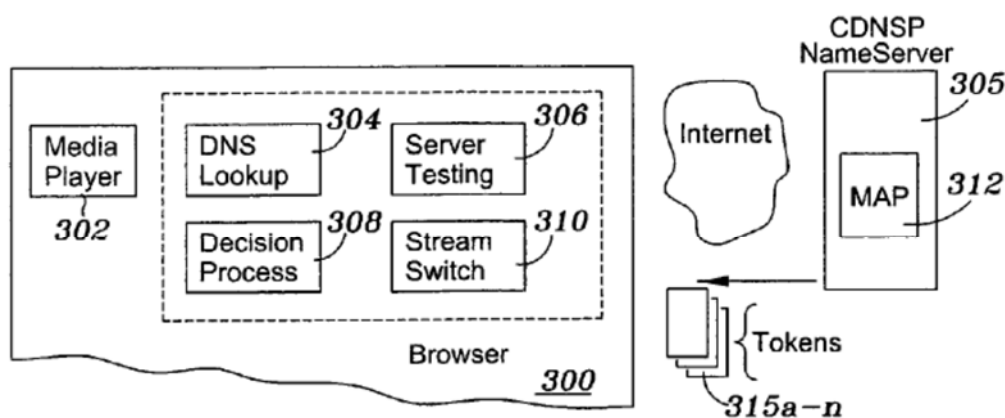


FIG. 3

Id., FIG. 3; *see also* Ex. 2002, ¶ 61.

DNS lookup process **304** performs a DNS lookup at a NameServer 305 and receives back tokens 315*a-n* where each "token 315 provides a distinct answer to the query and defines a machine or, in the preferred embodiment, a group of machines, from which the client should seek to obtain **the stream**." *Id.* at 7:26-46; *see also* Ex. 2003 at 54:15-25.² In other words, each server token represents a location from which the client browser can obtain the same content. *See* Ex. 2002, ¶ 62.

Once the client browser obtains a list of server locations from which it can obtain the desired content, the browser then uses server testing process **306** to determine which service to initially connect with to obtain the content. With respect to server testing process 306, Shaw states:

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**). In this way, the server testing may be used to "fine tune" the server chosen by the CDN DNS request routing system with an additional piece of information, namely, the **actual pipe the client is using for the connection**. **Once the fastest responding server is selected**, the client connects to it and sends a usual command, e.g., the RTSP DESCRIBE command.

² DNS stands for "domain name service." Ex. 1005 at 4:43.

Ex. 1005 at 8:22-31 (emphasis added). Dr. Myler testified that "fastest response" is not the same as "best bandwidth." Ex. 2003 at 65:12-66:11.³ Dr. Myler testified that the speed test disclosed in Shaw "is sort of like a ping" and the "server that comes back the fastest with the ping is the one that was, oh, they're paying attention. Let's use them." *Id.* at 59:3-10; 65:12-66:2. Dr. Myler was not aware of any other criteria that Shaw used to find the "best" server other than the fastest responding server. *See id.* at 63:14-64:1; *accord* Ex. 2002, ¶¶ 63-66.⁴

After the client browser selects the initial server and starts receiving the stream, Shaw teaches that the decision process 308 can decide to switch servers if it

³ The term "bandwidth" refers to the rate of data (*e.g.*, bits/second) that can be delivered, while "latency" refers to the amount of time (delay) between a request for data and the return of that data. *See* Ex. 2001 (Newton's Telecom Dictionary) at 99 (defining "bandwidth"), 473 (defining "latency"); Ex. 2002, ¶ 64. Dr. Myler described "bandwidth" as "a bitrate of the channel, what the channel is capable in terms of bitrate." Ex. 2003 at 64:5-11; *see also* Ex. 2002, ¶ 64.

⁴ Shaw states (and Dr. Myler acknowledged) that server testing process 306 does not need to do any testing when initially selecting a server for the stream, but can simply select one of the servers from the list of tokens from the DNS lookup process. *See* Ex. 1005 at 8:6-13; *see also* Ex. 2003 at 58:4-20; Ex. 2002, ¶ 66.

is no longer receiving an "acceptable stream from the first server." *See* Ex. 1005 at 9:19-24.⁵ Shaw further states that "[t]he 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." *Id.* at 9:24-27.⁶ Dr. Myler acknowledged that in Shaw the term "**thinned**" meant that "**there's an insufficient communication bandwidth between the server and the client**" and, in response, "the server may . . . 'thin' the stream by dropping information (example: Frames from the stream) so that the client can keep up." Ex. 2003 at 115:3-14

⁵ Shaw advises that "[t]he decision process 308 is used to determine whether the player should switch servers mid-stream. **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.**" Ex. 1005 at 9:19-24 (emphasis added); Ex. 2002, ¶ 67.

⁶ Shaw also teaches that what is acceptable can "mean acceptable from a stream management point of view. For example, the client could be actually told by the server that the stream is unacceptable, e.g., if the server knows it is to be taken down soon (for a software update or other servicing). It could also declare a stream unacceptable if new advertising or newer content (e.g., a fast breaking news story) becomes available." Ex. 1005 at 9:27-35; *see* Ex. 2002, ¶ 68.

(referring to paragraph 72 of Dr. Myler's declaration (Ex. 1003)) (emphasis added). Therefore, as taught by Shaw, the client browser may switch servers to receive a better connection (*i.e.*, a better conduit) to avoid having the server "thin" the stream when the server is transmitting the stream to the client browser. *Id.* at 22:20-23:1, 82:12-23); *see also* Ex. 2002, ¶ 69.

In describing its network switching process, Shaw explains that its process provides the client browser with a way "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 at 9:14-19 (emphasis added). *See* Ex. 2002, ¶ 71. Therefore, while the client browser may switch servers when the stream is being received and rendered, the client browser is still receiving and rendering **the same stream** after the switch (*i.e.*, the client browser is receiving and rendering the same stream from the second server that it was originally receiving from the first server). Dr. Myler acknowledged this point during his deposition:

Q Okay. So going back to our original example, with respect to Figure 3. Block 304 of the DSN look-up, let's say, for example, sends out the query, comes back with three tokens from **three different servers that have the stream that it wants**. It selects the best, which, in this case, is the fastest response one. Then, during that process of watching the -- **the video, whatever the stream is**, there becomes some degradation in the network connection, and it's no longer an acceptable stream. Block 308 would then decide to potentially switch **to get the**

same stream from a different server that has a better network connection. Is that a fair example of how the client browser functionality of Shaw works?

MR. PONDER: Objection. Form.

THE WITNESS: I -- **I think that's how we interpret it on reading it.**

Ex. 2003 at 74:25-75:17 (emphasis added); *see also id.* at 85:16-23. *Accord* Ex. 2002, ¶ 70.

Finally, once the decision process 308 makes the decision to switch servers, stream switch **310** implements the switch. Ex. 1005 at 9:37-40; *see also* Ex. 2003 at 83:3-13. Shaw teaches that the actual switching process "from a first server to a second server typically is media type-dependent and any convenient technique may be used." Ex. 1005 at 9:40-42. Shaw provides examples of such switching processes, including (a) buffering the stream from the first server and then switching to receiving the stream from the second server, (b) matching data packets from the stream being received by both the first and second servers, and (c) synchronizing a voice stream. *Id.* at 9:52-10:3; *see also* Ex. 2003 at 89:13-91:4; 93:11-94:10; *see also* Ex. 2002, ¶¶ 72-73.

Regardless of how the switching process takes place, the objective of the switch is to receive the same digital media content from the second server that was initially being received from the first server, but through a better network

connection. *See* Ex. 2002, ¶ 74. In fact, if the switch is done well, the user of the client browser would not notice the switch. Dr. Myler acknowledged this point during his deposition.

Q Okay. So after that synchronization is done, and it's before the switch and then the switch happens, the -- the listener in this case, because this is voice, **the listener wouldn't know a difference in the voice stream from one to the other because that synchronization would have happened ahead of time and allowed that switch to happen without the listener noticing**; is that true?

A That -- **that's what is implied by this example**. You know, he says: "The above are merely exemplaries and a convenient switching technique may be implemented." But that's one way you could do it, is what they're saying.

Ex. 2003 at 94:11-24 (emphasis added); *see* Ex. 2002, ¶ 74.

In addition to FIG. 3, Shaw provides a flow chart in FIG. 4 that highlights these teachings.

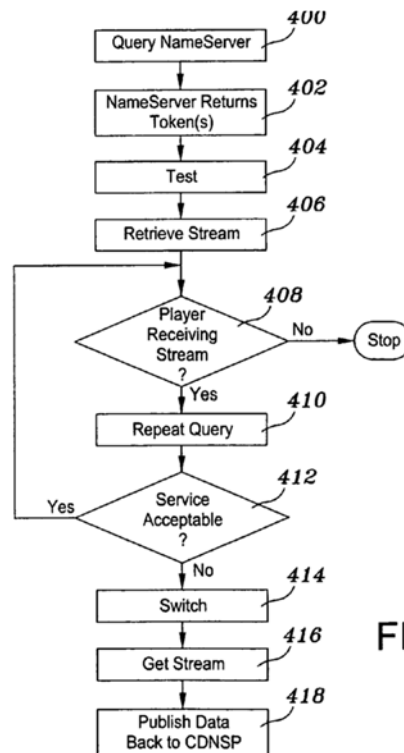


FIG. 4

Ex. 1005, FIG. 4. In his deposition, Dr. Myler gave a lengthy description of FIG. 4, which largely mirrored the teachings of FIG. 3 described *supra*. Ex. 2003 at 96:4-99:25. With respect to the network switching conditions taught in FIG. 4, Dr. Myler testified that "at Step 416, the client player continues to obtain the remainder of the stream from the new source" (*i.e.*, the user receives the same media content after the switch in servers). Ex. 2002, ¶ 75.

Finally, Dr. Myler acknowledged that the claims in Shaw reflect these teachings. For example, with respect to the first claim in Shaw, Dr. Myler acknowledged:

Q Okay. So this is an example of switching where you have the stream coming from a first server, that stream is not being -- that media

stream is no longer acceptable for some reason, and then you're -- and you switch to **get the same stream from a different server**; is that correct?

A **That does seem like what it reads to me, yes.**

Ex. 2003 at 112:14-21 (emphasis added); *see* Ex. 2002, ¶ 76. And with respect to the third claim of Shaw, Dr. Myler agreed that:

Q Okay. So **when the switch happens, the viewer on the media player wouldn't notice a difference** in the -- the stream because it would be -- it would appear -- appear continuous to that -- to that viewer; is that correct?

A **That is the objective of that claim.**

Id. at 113:15-114:12 (emphasis added); *see* Ex. 2002, ¶ 76.

Thus, as discussed in detail below, while Shaw discloses the concept of switching networks to receive a better network connection, Shaw does not teach switching servers to obtain media content at a higher quality level from the second server. *See* Ex. 2002, ¶ 77. In the end, Shaw teaches a process to improve the quality of the media **service** as a whole through switching to a better network connection. This teaching, however, does nothing to improve the quality of the media **content** itself and, therefore, falls far short of invalidating any of the Challenged Claims. *See id.*

III. CLAIM CONSTRUCTION

Petitioner argues that the term, "a portable system" should be considered limiting as it is used in the preamble of the Challenged Claims. Patent Owner does not concede this position. However, Petitioner's position is not material to the arguments before the Board and, therefore, does not need to be addressed as part of this Response. *See* Ex. 2002, ¶ 78.

IV. LEGAL STANDARDS

In addition to being novel, a valid claim must not have been obvious to a person with ordinary skill in the art at the time of the invention. *See, e.g., Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1565-68 (Fed. Cir. 1987). In determining whether a claim is obvious, the Board considers (1) the level of ordinary skill in the pertinent art; (2) the scope and content of the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective secondary considerations of non-obviousness, if any. *See, e.g., SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1355 (Fed. Cir. 2000); *In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000). The POSITA is a hypothetical person who is presumed to know the relevant prior art. *See Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986).

Importantly, "[a] patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior

art." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007). Rather, to establish *prima facie* obviousness, the cited references must be shown to disclose or suggest each claimed element *and* the Petition must establish that it would have been obvious to combine the teachings in the references together to arrive at the claimed invention. *See In re Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002). The Petition must demonstrate an apparent reason to modify a reference, or to combine the cited references to create the specific invention.

The rationale asserted by the Petition must follow from the nature of the problem to be solved, it must be "clear and particular, and it must be supported by actual evidence." *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1334 (Fed. Cir. 2002). The combined art must narrow the scope of the inventor's task to the point where it would have been obvious to try the particular invention claimed. If the particular invention lies hidden in a multitude of other options suggested by the art, the invention is not obvious. *See, e.g., Leo Pharm. Prods. Ltd. v. Rea*, 726 F.3d 1346, 1356 (Fed. Cir. 2013); *In re Kubin*, 561 F.3d 1351, 1359-60 (Fed. Cir. 2009).

Hindsight is forbidden in an obviousness analysis. *See In re Dembiczak*, 175 F.3d 994, 998-999 (Fed. Cir. 1999), abrogated on other grounds by *In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000); *see also Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1368 (Fed. Cir. 2012). Therefore, the reasons for combining references or modifying the teachings of a reference must be apparent at the time of

the invention, and they must be apparent without the use of hindsight. A telltale sign of impermissible hindsight analysis is the "use [of] the invention to define the problem that the invention solves." *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1376-78 (Fed. Cir. 2012) (reversing a district court that employed hindsight analysis because the district court's obviousness finding was improperly based on art directed to the solution as opposed to art directed to the problem).

V. PETITIONER HAS NOT ESTABLISHED THAT ANY CHALLENGED CLAIM IS INVALID

Petitioner has not demonstrated that any Challenged Claim is invalid over the alleged combination of Barnes and Shaw – Petitioner's sole ground for review. Petitioner fails to bear its burden to establish that the Challenged Claims are invalid under 35 U.S.C. § 103 for the reasons set forth below.

A. Independent Claims 1, 6, 11, and 16

1. Digital Media Service

Each of the Challenged Claims is either a method or system "for providing a digital media service." Ex. 1001 at 26:29-30, 26:55-56, 27:22-23, 28:9-10 (emphasis added). The '992 Patent states that the "'service' is generally a function performed by the first system for the ultimate benefit of the user. For example and without limitation, a service may comprise an audio output service, a video output service, a textual interface service, an audio interface service, a video interface

service, a data processing service, an email service, etc." *Id.* at 3:16-22. When asked to describe a "digital media service," Dr. Myler testified as follows:

Q What's a "digital media service"?

A It's media, which typically, "media" implies some sort of specifically formatted information like images -- oh, digital media, images like JPEGs and GIFs and so on, or video, digital video, which you can have a thing called motion JPEG, which is just the individual frames of the video are JPEG images that are presented. And then you've got -- you've actually got -- text is included with digital media. You have, you know, e-books and things like that. And a digital media service would be coming from a server, being served up and available to a user for their -- the consumption of the media. I think that term is actually used, "consumption of the media." I'm talking about the POSITA would know what that means.

Q Okay. So for -- I think I got this right, but from -- from -- from the term "digital media service," you have a digital media content portion, like the JPEG as an example, and then you have the server portion, which is like how that media content is being delivered through a network, as an example; is that fair?

A I think so. I think that's fair to say. The digital media service is a server delivering somehow digital media.

Ex. 2003 at 150:24-151:25 (emphasis added); *accord* Ex. 2002, ¶ 80.

Therefore, as explained by Dr. Myler, there are two different portions of a digital media service – (1) digital media content and (2) a server to deliver such

content through a network connection. *Id.* These two portions of a digital media service are clearly set forth in the Challenged Claims. *See* Ex. 2002, ¶ 80.

a) Digital Media Content

In his description of "digital media content," Dr. Myler explained that "'media' implies some sort of specifically formatted information." Ex. 2003 at 150:25-151:2. The '992 Patent also uses the term "information" to refer to "media content." For example, in the context of comparing the quality of information (*e.g.*, digital media content) on two different systems, the '992 Patent explains:

For example, the second system may have access to **higher quality information** than the first system. As an example, such higher quality information may include information encoded utilizing a lower loss encoding technique than used to encode the information to which the first system has access. As another example, such higher quality information may include information to which the second system has access and to which the first system has no access.

Ex. 1001 at 6:11-18 (emphasis added). Therefore, as this example demonstrates, the "quality" of the information (*e.g.*, digital media content) refers specifically to the quality of the information itself. *Id.* (providing the example that "such **higher quality information** may include information encoded utilizing a **lower loss encoding technique** than used to encode the information to which the first system has access") (emphasis added); *see also* Ex. 2002, ¶ 81.

The Challenged Claims make this point clear in the First Delivering Limitation that states, "delivering digital media content having a current quality level to a user." Ex. 1001 at 26:31-32, 26:58-59, 27:23-24, 28:12-13. The "current quality level" of the "digital media content" is defined in the Challenged Claims before a network connection is mentioned. In fact, the example provided in the specification from Fig. 5 states that user may initially be listening to music on headset 520 that is stored locally on PDA 515 – *i.e.*, the digital media content at the current quality level of the Challenged Claims can be delivered to the user without a network connection. *Id.* at 3:25-33; Ex. 2002, ¶ 82.

b) Network Connection

While the quality level of digital media content is independent of a network connection, the quality level of the digital media service is not. Ex. 2002, ¶ 83. In fact, the '992 Patent makes clear that having access to higher digital media content from a second system depends greatly on whether the first system can establish a sufficient network connection with the second system. Specifically, a network connection is what allows for the access to higher quality information. For example, the '992 Patent explains that:

The information regarding access to various information sources may also include information of the media over which such access exists. For example, access to various information sources may comprise local access or networked access. **The type of access to various**

information sources, as well as the quality of the information, may be considered in determining whether utilizing various resources of the second system will provide the current service to the user at a higher quality level. For example, access to high quality information over a communication network may be of little value in certain scenarios if the communication network is slow or unreliable.

Ex. 1001 at 6:19-30. As this portion of the '992 Patent makes clear, two important considerations of the inventions described in the '992 Patent are (1) the quality of the information and (2) the access to such information. *See* Ex. 2002, ¶ 83. Both considerations go into the overall quality of the digital media service.

These distinctions between quality of digital media content and access to such content are set forth in the Challenged Claims. Specifically, and as explained above, each of the Challenge Claims require:

- i) digital media content with a current quality level and a quality level higher;
and
- ii) a network connection that is available and has a communication bandwidth high enough / a minimum determined communication bandwidth

See supra § II.B.2; Ex. 2002, ¶ 84.

The overall quality of the digital media service is comprised of these two requirements. *See* Ex. 2003 at 150:24-151:25; *see also* Ex. 1001 at 6:40-49 (providing an example where digital media content has two quality levels – 64 Kbps

encoding quality music on the portable system and CD-quality music on the second system – as well as a discussion of determining whether the portable system can establish access to the digital media content on the second system so that it can "provide the current service to the user at a higher level of quality") (emphasis added); *accord* Ex. 2002, ¶ 85.

c) Service Quality Metrics

The '992 Patent discusses the various intersections of content quality and content access when explaining how the inventions reflected in the Challenged Claims "determine whether utilizing the second system (or various resources thereof) will increase the quality at which the current service is being provided to the user." Ex. 1001 at 4:26-28 (emphasis added); *see* Ex. 2002, ¶ 86. With respect to the flow chart in Fig. 1, the '992 Patent states that the two systems exchange information over the communication link established in step 140 to make such a determination. *Id.* at 4:28-31. As Dr. Myler acknowledged,

Q Okay. So in this step, it's **not necessarily true that the digital media service being provided by the first system is bad, but rather, we just want to see if we can increase the quality of the service**; is that true?

A **Yeah**, this is a determining step, where you're trying to determine if you should make a decision if you should do the switch.

Q Okay.

A And the criteria is, indeed, increase the quality at which the current service is being provided to the user.

Ex. 2003 at 169:20-170:6 (emphasis added); *accord* Ex. 2002, ¶ 86.

With respect to these "criteria," the '992 Patent explains that there are a wide range of "quality metrics" used to make the quality determination of the overall service. Ex. 1001 at 4:31-33. As set forth below, these metrics relate to both the quality of information and the ability to access such information using a network connection:

- 1) audio/video output quality;
- 2) rate of response to user input;
- 3) duration over which the service may be provided;
- 4) number of information consumption options available to a user;
- 5) variety of information that may be accessed;
- 6) quality of information that may be accessed; and
- 7) rate at which such information may be accessed.

Id. at 4:31-38. *See* Ex. 2002, ¶ 87.

As can be readily seen from this list of exemplary quality metrics, these metrics concern the access (*i.e.*, network connection) between the first and second systems (quality metrics 2, 3, 7) as well as the quality of the information (*i.e.*, digital

media content) itself (quality metrics 1, 4, 5, and 6). *See* Ex. 2002, ¶ 88. For example, in describing the first quality metric, Dr. Myler acknowledged:

Q Okay. So this generally relates to the **quality of the media content itself**. So as an example, just as an example, a video that is stored in an HD format would be of a higher quality than media -- a media file stored in an SD or standard definition file type; is that fair?

A **Yes, that's what a POSITA would agree with that, that HD is better than standard.** And -- and the name implies it.

Ex. 2003 at 170:25-171:8 (emphasis added); *see also id.* at 170:11-25 (addressing the first quality metric set forth above).

With respect to the sixth and seventh quality metrics cited above, Dr. Myler provided a clear distinction between a service quality metric related to the quality of digital media content and a service quality metric related to the network connection. Specifically, with respect to the sixth quality metric, Dr. Myler testified as follows:

Q Okay. And then -- and maybe I skipped ahead a bit here, but the next one says a quality -- **quality of information to be accessed**. Do you see that?

A Yes.

Q Okay. And what would that mean to a person of ordinary skill?

A Well, since this is -- we're talking about quality metrics, there may be -- **the information, you might have multiple video files of the exact same material at the same resolution, same frame rates, one of the media files was digitally mastered and the other media file**

somebody snuck a camcorder into a movie theater and recorded a movie, you know, to bootleg, kind of thing.

Q Uh-huh.

A I think we can say the digitalization scheme **would affect the quality of the information that can be accessed**. So that would be one example of this, you know, coming off of what would a POSITA think of this metric.

Ex. 2003 at 177:22-178:17 (emphasis added); *accord* Ex. 2002, ¶ 89. However, with respect to the seventh quality metric, Dr. Myler testified as follows:

Q Right. Okay. And the last one is just **rate at which such information can be accessed**. Do you see that?

A Yes.

Q So what would a person of ordinary skill in the art view or understand that metric to be?

A Well, that metric could be -- could be is **the network speed** fast enough, high enough rate to access that information, and if it's not -- we're talking about a quality metric here. So, you know, what -- what -- how does that impact the quality -- the quality that we can -- that we can access. So that -- that's **the rate of which such information may be accessed**. We were talking about dropping -- **thinning and dropping frames and things like that, that that impacts the rate and ultimately will impact the quality**.

Ex. 2003 at 178:18-179:10 (emphasis added); *accord* Ex. 2002, ¶ 90.

Tellingly, with respect to the seventh quality metric – a metric that relates solely to the network connection – Dr. Myler referenced "thinning" which, as discussed above, is the primary reason to switch networks discussed in Shaw. *See supra* § II.C.2. Patent Owner's expert, Dr. Ghassan AlRegib agrees with Dr. Myler's assessment that thinning relates to the quality of the network connection. Ex. 2002, ¶ 91. Therefore, it is undisputed that "thinning" relates to the network connection – not the quality of the digital media content itself.

2. The Combination of Barnes and Shaw Does Not Invalidate Independent Claims 1 and 6

The combination of Barnes and Shaw does not invalidate Claims 1 and 6 for several independent and distinct reasons.

a) Determining Limitation

The combination of Barnes and Shaw does not disclose the Determining Limitation (*i.e.*, limitations [1c] and [6c]) of Claims 1 and 6, respectively. In its arguments regarding this limitation, Petitioner first relies on Shaw and then Barnes. Neither of these references, however, disclose the Determining Limitation.

With respect to Shaw, the Petitioner confuses the overall quality level of the digital media service with the quality levels of the digital media content itself. *See* Ex. 2002, ¶ 94. As explained in detail above, the entirety of the Shaw disclosure relates to the network – not the quality of the media content transported by the network. *See supra* § II.C.2. Shaw teaches that identical copies of the media

content are stored on servers within the CDN. *Id.* As a result, the client browser can switch between servers if it experiences a degradation of network connection with the current server and still receive the same content (*i.e.*, the same "stream"). *Id.* As explained above, Shaw repeatedly states that, if the network switch is done correctly, the user will not notice the switch because the "stream" will seamlessly switch from the first server to the second server. *Id.* If the user cannot tell the difference in the media content after Shaw's client browser switches from the first server to the second server, the client browser certainly did not provide digital media content at a **higher** quality level from the second system. *See* Ex. 2002, ¶¶ 94-95.

Indeed, the whole purpose behind the network switching conditions of Shaw are to maintain (or enhance) the network connection to obtain the **same** media content for the user. *See* Ex. 2002, ¶ 95. While this will certainly improve the overall quality of the service, the improvement in quality is a result of the network connection – not the improvement of quality in the digital media content. *See id.* As explained by Dr. AlRegib, the '992 Patent and Shaw teach different ways to improve the quality of a media content service – the '992 Patent seeks to improve the quality of the digital media service through obtaining higher quality digital media content whereas Shaw seeks to improve the quality of the digital media service through maintaining (or enhancing) the network connection. *See id.*, ¶ 96.

Therefore, while Shaw does determine a network connection with a second system as required by the Challenged Claims, Shaw does not determine whether that network connection "is high enough to provide the digital media content to the user at a **quality level higher** than the current quality level." Ex. 1001 at 26:35-37 (emphasis added); *see also* Ex. 2002, ¶ 97. As shown above, Dr. Myler specifically testified that "thinning" – the primary basis given by Shaw to switch networks – relates to the quality of the network connection and not to the quality of the digital media content itself. *See supra* § II.C.2.

For essentially the same reasons, Petitioner also fails to establish that Barnes discloses the Determining Limitation. As explained above, none of the "network switching conditions" referenced by Barnes address the **quality** of the digital media **content** displayed on device 101. *See supra* § II.C.1. In fact, in describing these conditions in detail during his deposition, Dr. Myler never mentioned the word "quality" in the totality of his testimony concerning Barnes' network switching conditions – let alone obtaining a higher quality of the digital media content on the second system as required by the Challenged Claims. *See id.*; *accord* Ex. 2002, ¶ 98.

Finally, Petitioner's attempt to conflate the overall quality level of the digital media **service** with the quality levels of the digital media **content** is the precise reason that Applicant amended the Challenged Claims during prosecution. *See supra* § II.B.3. As explained in detail above, Applicant specifically amended the

Determining Limitation to change "digital media service" to "digital media content" to make this point clear. Ex. 1002 at 43. Therefore, for the same reason the Examiner allowed the Challenged Claims over the Jagadeesan and Kayama references, the Board should uphold the validity of the Challenged Claims over Shaw and Barnes. *See id.* at 21, 50; *see also* Ex. 2002, ¶ 99.

b) Using Limitation

For many of the same reasons, the combination of Barnes and Shaw does not disclose the Using Limitation (*i.e.*, limitations [1d] and [6d]) of Claims 1 and 6, respectively. Indeed, because neither Barnes nor Shaw identifies the digital media content at "a higher quality level than the current quality level" as required by the Determining Limitation, it is impossible for either reference to use "the network connection to obtain the digital media content at the higher quality level from the second system" as required by the Using Limitation. Ex. 1001 at 26:31-40; *see also supra* § V.A.2.a); Ex. 2002, ¶ 100.

c) Second Delivering Limitation

Finally, neither Barnes nor Shaw discloses the Second Delivering Limitation (*i.e.*, limitation [1d] and [6d]) of Claims 1 and 6, respectively, for several reasons. First, for the reasons stated above, neither Barnes nor Shaw teach identifying the digital media content at "a higher quality level than the current quality level" as required by the Determining Limitation and, therefore, also do not teach "delivering

the digital media content at the higher quality level to the user instead of the digital media content at the current quality level" as required by the Second Delivering Limitation. *See supra* § V.A.2.a). Second, Petitioner and Dr. Myler argue that the Using Limitation and Second Delivery Limitation are part of the same limitation, which attempts to improperly eliminate the Second Delivery Limitation from the Challenged Claims. *See* Pet. at 39; *see also* Ex. 1003 (Myler Decl.), ¶46; *compare id.* with Ex. 2002, ¶¶ 101-02.

During his deposition, however, Dr. Myler made it clear that the Using Limitation and the Second Delivery Limitation were quite different. Specifically, when asked to provide a description of the phrase "delivering digital media content to a user," Dr. Myler testified that:

Q Okay. And what does it mean when it says: "You're delivering digital media content to a user?"

A Well, delivering -- I think I talked about that in my report. Delivering business – **delivering means that you are providing that content in a form that the user can use.**

Ex. 2003 at 225:19-24 (emphasis added); *see also* Ex. 2002, ¶ 102. Dr. Myler gave an even more specific explanation of the difference between obtaining digital media content at a higher quality level and delivering that higher quality content to the user.

Q Okay. So, for example, if I have a device, let's say a PDA, that only has -- I think you gave this example earlier -- only has the

capability of showing a movie in SD format. Even though I could obtain an HD version of the movie through the network and from the second system, there would be no way to deliver that to the user because the user is looking at a screen that doesn't support that format, the HD format; is that correct?

A That's correct. Whether it -- the 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, yeah.

Q Yeah. So even though I could obtain the higher quality content, I couldn't deliver it to the user because a user is using a device that doesn't have the correct processing capability; is that correct?

A I think I called that the utilizing elements, you know, can you -- can you utilize it or not. Yeah, you may find it. You may have it in your hand. It's sort of like a little lockbox full of rare gems. Well, you're not going to have those rare gems unless you have the key, you know, that kind of thing.

Q Right.

A Even though getting at the gems would increase your quality of life, let's say.

Ex. 2003 at 181:24-183:2 (emphasis added); *accord* Ex. 2002, ¶ 102.

Based on this testimony, with which Dr. AlRegib agrees, the Using Limitation and the Second Delivery Limitation are two different limitations. The Using

Limitation is concerned with the use of the network to "obtain" the digital media content at the higher quality level. Ex. 1001 at 26:38-40; *see also* Ex. 2002, ¶ 103. In contrast, the Second Delivering Limitation is concerned with providing the digital media content at the higher quality level in a form that the user can use. Ex. 2003 at 225:19-24; *see also* Ex. 2002, ¶ 103.

As part of the Determining Limitation, as explained above, the two systems share information, including the various processing capabilities (*e.g.* decoding capabilities) of the two systems. *See supra* § V.A.2.a). This exchange of information between the two systems helps ensure that, if the higher quality digital media content can be obtained from the second system, the portable system will be able to deliver it to the user. *See id.*; *supra* § II.B.1; *see also* Ex. 1001 at 5:18-52, 5:3-17 (explaining that the "Step 150 may comprise communicating 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.** For example and without limitation, the first and second systems may communicate information of **data decoding and processing capability**. Such processing capability may be, for example, related to available hardware or software resources.") (emphasis added); *accord* Ex. 2002, ¶ 104.

Therefore, because the systems taught by Barnes and Shaw do not teach anything related to obtaining digital media content at a higher quality level from another source, these references do not teach determining whether the portable system can **deliver** the digital media content at a higher quality level to the user. Because of this clear shortcoming of Barnes and Shaw, the Petitioner attempts to conflate the Second Delivering Limitation with the Using Limitation – something the Board should disregard by upholding the validity of the Challenged Claims. *See Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech.*, 709 F.3d 1348, 1356-57 (Fed. Cir. 2013) (rejecting Aristocrat's argument that combined two claim limitations as it would render one claim limitation "superfluous"); *United Servs. Automobile Ass'n v. Asghari-Kamrani*, No. CBM2016-00063, Paper 14 at 17 (PTAB Sept. 21, 2016) (same); *see also Cat Tech LLC v. TubeMaster, Inc.*, 528 F.3d 871, 885 (Fed. Cir. 2008) (interpretation cannot render claim limitations "functionally meaningless"); *Samsung Elecs. Co., Ltd. et al. v. Elm 3DS Innovations, LLC*, No. IPR2016-00386, Paper 68 at 26 (PTAB June 23, 2017) (same).

3. The Combination of Barnes and Shaw Does Not Invalidate Independent Claims 11 and 16

The combination of Barnes and Shaw does not invalidate Claims 11 and 16 for many of the same reasons that these references do not invalidate Claims 1 and 6.

First, the Determining Limitation and Utilizing Limitation of Claims 11 and 16 (*i.e.*, limitations [11d] [11e] and [16d] [16e]), respectively, require "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" and "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." Ex. 1001 at 27:28-34, 28:17-23; *see* Ex. 2002, ¶ 107.

As explained above with respect to Claims 1 and 6, Shaw and Barnes both teach switching servers to obtain a better network connection, but neither reference teaches anything about "utilizing the network connection to receive the digital media content at a quality level higher than the current quality level" as required by the Utilizing Limitation. *See supra* § V.A.2.b); Ex. 2002, ¶ 108.

Second, neither Barnes nor Shaw disclose the Second Delivery Limitation of Claims 11 and 16 (*i.e.*, limitations [11e] and [16e]), respectively, for the same reasons that these references do not teach the Second Delivery Limitation in Claims 1 and 6. *See supra* § V.A.2.c); Ex. 2002, ¶ 109.

B. Dependent Claims 2-5, 7-10, 12-13, and 17-18

Challenged Claims 2-5, 7-10, 12-13, and 17-18 depend from Claims 1, 6, 11, or 16. Thus, these dependent claims are valid over the Barnes and Shaw references for at least the reasons discussed above with regard to independent Claims 1, 6, 11, and 16. *See* Ex. 2002, ¶ 110.

C. Dependent Claims 14 and 19

The Petitioner does not offer any evidence to support its assertions that Claims 14 and 19 are obvious. *See* Pet. at 9 (listing Claims 14 and 19 in Ground 1). Specifically, other than listing Claims 14 and 19 within the group of Challenged Claims, Petitioner never even mentions Claims 14 and 19 elsewhere in the Petition, let alone discussing the limitations of those claims or arguing why the cited references might disclose those limitations. *See* Ex. 2002, ¶ 111. This omission falls far short of the Board's prescription that "the initial petition identify with particularity the evidence that supports the grounds for the challenge to each claim" *Everstar Merch. Co., Ltd. v. Willis Elec. Co., Ltd.*, PGR2019-00056, Paper 40 at 32 (PTAB Feb. 18, 2021) (emphasis added). Accordingly, Petitioner has not actually challenged Claims 14 and 19 and the Board should maintain its finding in its Institution Decision that "Petitioner has not satisfied its burden with respect to claims 14 and 19." Institution Decision (Paper 7) at 16.

D. Barnes and Shaw Cannot Be Combined to Invalidate the Challenged Claims

During his deposition, Dr. Myler testified that a POSITA would seek to combine the teachings of Barnes and Shaw. Ex. 2003 at 117:16-118:2. In particular, Dr. Myler claimed that a POSITA would seek to use the teachings of Shaw related to the media player to allow the mobile device in Barnes "to seek out and find better

sources from multiple sources." *Id.* However, when ask to elaborate on this opinion,

Dr. Myler testified as follows:

Q Okay. And in your opinions that you provide in this matter, you've offered a number of opinions about a person of ordinary skill in the art combining the teachings of the Shaw patent that we discussed earlier today and this Barnes reference; is that correct?

A I believe I gave a number of -- of opinions in that regard of a POSITA saying look at Barnes, look at Shaw, and combinations would lead us to a better device.

Q And as we discussed earlier today, Shaw has various disclosures about network switching capabilities; correct?

A Shaw did discuss network switching capabilities, yes.

Q And as we just discussed in Barnes, paragraph 74, it also talks about network switching conditions; is that correct?

A It did discuss network switching conditions, reasons to switch.

Q So is it your opinion that a POSITA would take the teachings of Shaw with respect to its network switching conditions and implement them in the device 101 that is disclosed in Barnes?

MR. PONDER: Objection, form.

THE WITNESS: Well, there are things happening in -- in Shaw that we might allude to in Barnes, but they're very clearly delineated in Shaw and -- so there are things happening in Shaw to improve what's happening in Barnes. And I think I talked about that in various paragraphs in my report.

By MR. YOUNG:

Q So is it your opinion that a POSITA would combine the network switching conditions of Shaw with the network conditions -- network switching conditions of Barnes, or would the network switching conditions of Shaw be substituted in place of the network switching conditions of Barnes?

A **I don't think that the -- it's so much a substitution as it is an enhancement. It's an addition, an improvement.**

Q **So what would the improvement or the enhancement of Shaw be to Barnes?**

A Well, I think what -- if memory serves, **Barnes really doesn't talk about RTSP**, which is a mechanism by which the POSITA would know could be used to enhance real-time streaming. And those techniques could be used in making these decision processes in Barnes as to -- the information gleaned from those could come into these program criteria that Barnes is talking about.

Q Do you believe that the opinions or the -- network switching conditions of Shaw are -- are limited to RTSP?

A No, I didn't see any specific limitations in terms of the claims that you would -- it was just RT -- what RTSP basically did for me with Shaw was it placed Shaw in terms of the mind of the POSITA. And at the time of Shaw, which we know was in the right time frame, it allowed me to get into the mind of the POSITA. And -- and being aware of how the access of RTSP could deliver a better overall performance, let's say, from Barnes and Barnes saying, okay, you can look at this network and

look at this network and look at this network. It would be very clear to a POSITA that that is very understandable how to do that and -- but what probably is more important is the negotiations that are taking place in the sense of the device talking to the network, talking to the server, and getting information back in order to make a decision, and then being aware of what networks are out there and what they can provide. And that -- that really is what it is, is this re -- resource allocation and, to some extent, completely independent of the user, although Barnes clearly says in the switching the user might jump in there and say, I want to do this. But I -- I think that that -- that's sort of, in a nutshell, beyond the more specific things that I said in my report.

Q Okay. Maybe, it would help if I got -- if you can give me an example. **Can you give me an example of how the network switching conditions of Barnes would be specifically improved using the network switching conditions taught in Shaw?**

A The network switching conditions of Barnes being improved?

Q I think you said that the -- I'll back up. I think you said that the network switching conditions of Shaw would enhance -- I think you used the word "enhance" -- the network switching conditions of Barnes; is that correct?

A I believe I might have said that, yes, and that's more or less what I meant. And that Barnes -- Because Barnes is a -- is a patent that has to do with resource allocation and content delivery in a network, it illustrates a lot of the technology that was available at the time that a POSITA could take advantage of in order to have a more robust switching decision as described in Barnes.

Q Okay. So that's what I'm trying to get at. If you can give me an example, or can you give me an example of how Shaw would make -- the Shaw teachings with respect to network switching would make the network switching of Barnes more robust?

A Well, Barnes talks, especially in this paragraph here, of network switching conditions when they arise. And so how -- how does the system know that network switching conditions have arose? Well, the obvious one is the user. The user says I want to do this, and it changes everything. But then there are more subtle ones, where the system is aware of the networks that are available to it in terms of its hardware. In other words, it -- if a Bluetooth network becomes available and the system doesn't have a Bluetooth channel, it's not going to be accessing the Bluetooth network. And that's the Personal Area Network, PAN, I believe. And so it's important for the system, from Barnes' standpoint, to know what becomes available. And I believe that that is shown in Barnes, particularly with its system going out and looking for better networks, because better networks come online and go offline, and so on and so forth, whereas Barnes is more of a wandering around. And so those techniques of looking at other net -- finding networks and knowing the network's capabilities would definitely, I think, be an improvement to Barnes. And I think a POSITA would see that as well.

Ex. 2003 at 137:3-142:6 (emphasis added).

The above quotation from Dr. Myler's deposition is lengthy, but important. Tellingly, in this entire portion of Dr. Myler's deposition, the word "quality" is never mentioned. As shown in the file history of the '992 Patent, the Applicant specifically

amended the Challenged Claims to emphasize the importance of obtaining digital media content at a higher quality level from the second system. *See supra* § II.B.3. Given the clear importance of the quality level of the digital media content to the patentability of the Challenged Claims, it is surprising that Dr. Myler never mentioned this aspect of the Challenged Claims in this entire, lengthy testimony concerning the alleged combination of the Barnes and Shaw references. Therefore, assuming *arguendo* that a POSITA would seek to combine the teachings of the Barnes and Shaw references – a point the Patent Owner absolutely does not concede – any such combination would not teach the limitation of the Challenged Claims as evidenced by Dr. Myler's disregard of one of the threshold teachings of the '992 Patent encompassed in the Challenged Claims concerning higher quality digital media content. *See* Ex. 2002, ¶¶ 112-13.

VI. CONCLUSION

For the reasons set forth above, Avago respectfully submits that the Board should deny Petitioner's request for *inter partes* review of the Challenged Claims of the '992 Patent as Petitioner has failed to demonstrate that any Challenged Claim is invalid by a preponderance of the evidence as required by 35 U.S.C. § 316(e).

VII. CERTIFICATION PURSUANT TO 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that based on the "word count" feature of Microsoft Word, this Patent Owner's Response includes 13,971 words.

Respectfully submitted,

Dated: September 27, 2021

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6, the undersigned hereby certifies that a copy of the foregoing **PATENT OWNER'S RESPONSE** was filed through the Patent Trial and Appeal Board End to End (PTAB E2E) electronic filing system on September 27, 2021 with a confirmation copy served via electronic mail, on the following counsel of record for Petitioner:

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