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Paper 73
Date: November 19, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FUBOTV MEDIA INC. and YANKA INDUSTRIES, INC.,
Petitioner,

v.

DISH TECHNOLOGIES L.L.C.,
Patent Owner.

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IPR2024-00917
Patent 10,757,156 B2

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Before THU A. DANG, MICHELLE N. WORMMEESTER, and JOHN A. HUDALLA, *Administrative Patent Judges*.

Opinion concurring filed by *Administrative Patent Judge* HUDALLA.

WORMMEESTER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
*35 U.S.C. § 318(a)*
Denying-in-Part and Dismissing-in-Part Patent Owner's Motion to Strike
*37 C.F.R. § 42.5*

# I. INTRODUCTION

fuboTV Media Inc. and Yanka Industries, Inc. (collectively, "Petitioner") filed a Petition (Paper 3, "Pet.") requesting *inter partes* review of claims 1–18 of U.S. Patent No. 10,757,156 B2 (Ex. 1001, "the '156 patent"). DISH Technologies L.L.C. ("Patent Owner") filed a Preliminary Response (Paper 8). With our authorization, Petitioner filed a Preliminary Reply (Paper 10), and Patent Owner filed a Preliminary Sur-reply (Paper 11). Ex. 1021, 28:14–29:14 (telephone conference transcript). Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review of all challenged claims based on all asserted challenges in the Petition. Paper 14 ("Inst. Dec.").

Following institution, Patent Owner filed a Response (Paper 27, "PO Resp.") to the Petition, Petitioner filed a Reply (Paper 51, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 66, "PO Sur-reply"). Patent Owner also filed a Motion to Strike (Paper 57, "PO Mot."), Petitioner filed an Opposition (Paper 65, "Pet. Opp."), and Patent Owner filed a Reply in Support of Its Motion (Paper 67, "PO Mot. Reply").

On August 22, 2025, we conducted an oral hearing. A copy of the transcript (Paper 71) is in the record.

We have jurisdiction under 35 U.S.C. § 6(b). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–18 of the '156 patent are unpatentable.

# II. BACKGROUND

## *A. Related Proceedings*

The parties identify various federal district court cases and petitions for *inter partes* review. *See* Paper 25, 1–3; Paper 50, 1–6. Also, we note the '156 patent is involved in an *ex parte* reexamination, which has been stayed pending the conclusion of this proceeding. Paper 23.

## *B. The '156 Patent*

The '156 patent describes adaptive-rate shifting of streaming content. Ex. 1001, code (57), 1:25–28. The '156 patent addresses a purported need to "utilize multiple connections between a source and destination, requesting varying bitrate streams depending upon network conditions." *Id.* at 2:57–60.

Figure 1 of the '156 patent is reproduced below.

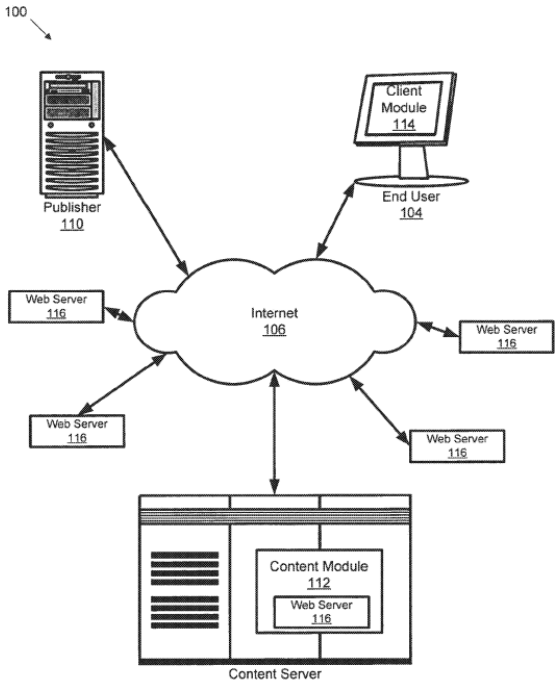



FIG. 1

Figure 1 depicts "system 100 for dynamic rate shifting of streaming content." Ex. 1001, 6:20–22. System 100 includes content server 102, end user station 104, publisher 110, and web server 116. *Id.* at 6:23–34. Content may be transferred over Internet 106 to content server 102. *Id.* at 6:40–42.

Figure 2b of the '156 patent is reproduced below.

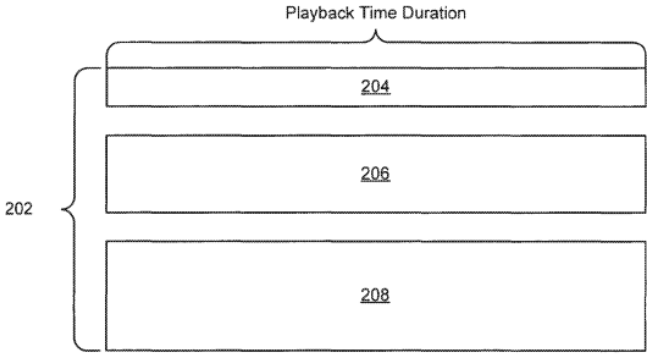



FIG. 2b

Figure 2b depicts "a plurality of streams 202 having varying degrees of quality and bandwidth." Ex. 1001, 6:64–66. Streams 202 comprise low-quality stream 204, medium-quality stream 206, and high-quality stream 208, and each of streams 204, 206, 208 is a copy of content file 200 encoded and compressed to varying bit rates. *Id.* at 6:66–7:1.

Figure 2c of the '156 patent is reproduced below.

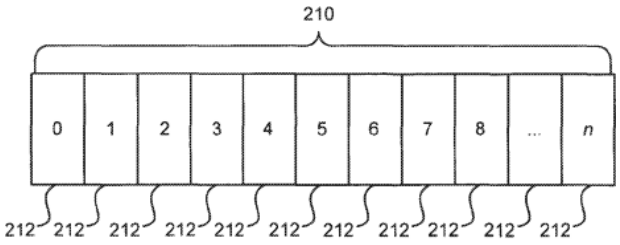



FIG. 2c

Figure 2c depicts "stream 210 divided into a plurality of streamlets 212," which are "any sized portion[s] of the content file 200." Ex. 1001, 7:10–12.

*C. Illustrative Claim*

Petitioner challenges claims 1–18 of the '156 patent. Claims 1 and 13 are independent. Claim 1 is reproduced below, with added brackets to show Petitioner's reference designations and added line breaks to ease readability.

> 1. An apparatus for rendering a video that is adaptively received as a digital stream from a video server over a network, the apparatus comprising;
>
> [1A1] a media player operating on the apparatus,
>
> [1A2] wherein the media player is configured to stream the video from the video server via at least one transmission control protocol (TCP) connection over the network,
>
> [1A3] wherein the video server stores multiple different copies of the video encoded at different bit rates as multiple sets of streamlets,
>
> [1A4] wherein each of the streamlets yields a different portion of the video on playback,
>
> [1A5] wherein the streamlets across the different copies yield the same portions of the video on playback, and
>
> [1A6] wherein the streamlets in the different copies are aligned in time such that the streamlets that play back the same portion of the video for the different copies each begin at the same playback time in relation to the beginning of the video, and wherein the media player streams the video by:
>
> [1B1] requesting sequential streamlets of one of the copies from the video server according to the playback times of the streamlets by transmitting hypertext transport protocol (HTTP) GET requests that identify the selected streamlets stored by the video server,

[1B2] wherein the sequential streamlets are selected by the media player from the based upon successive determinations to shift the playback quality to a higher or lower quality one of the different copies of the video;

[1C] repeatedly generating, by the media player, a factor relating to the performance of the network that is indicative of an ability to sustain the streaming of the video;

[1D] adapting the successive determinations to shift the playback quality based on the factor to achieve continuous playback of the video using the streamlets of the highest quality copy of the video that is determined to be sustainable at that time; and

[1E] presenting the video for playback by providing the requested streamlets in order of ascending start time.

*D. Asserted Challenges to Unpatentability*

Petitioner asserts the following two challenges to claims 1–18. Pet. 6, 16–52. We instituted *inter partes* review on each challenge. Inst. Dec. 36.

| Claim(s) Challenged | 35 U.S.C. § | Reference(s)/Basis |
|---|---|---|
| 1–18 | 103(a)[1] | Leaning[2] |
| 1–18 | 103(a) | Leaning, Ala-Honkola[3] |

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the '156 patent issued claims priority to an application filed before this date, the pre-AIA version of § 103 applies.
[2] Leaning et al., WO 02/49343 A1, published June 20, 2002 (Ex. 1004).
[3] Ala-Honkola, US 2003/0055995 A1, published Mar. 20, 2003 (Ex. 1017).

In support of its challenges, Petitioner relies on a Declaration of Henry Houh, Ph.D. (Ex. 1003) and a Reply Declaration of Henry Houh, Ph.D. (Ex. 1026).

Patent Owner relies on a Declaration of R. Drew Major (Ex. 2020), a Declaration of Gregory Smith (Ex. 2099), a Declaration of David Ericson (Ex. 2100), a Declaration of John Edwards (Ex. 2123), a Declaration of Peter Ratcliffe (Ex. 2126), a Declaration of Mark Mitchell (Ex. 2127), and a Declaration of Dr. Kevin Jeffay (Ex. 2141).

Transcripts of the depositions of Dr. Houh (Ex. 2129, Ex. 2150), Dr. Jeffay (Ex. 1027), Mr. Ericson (Ex. 1030), Mr. Major (Ex. 1032), Mr. Mitchell (Ex. 1034), and Mr. Ratcliffe (Ex. 1035) also are in the record.

## III. DISCUSSION

### *A. Claim Construction*

We interpret a claim "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." *See* 37 C.F.R. § 42.100(b). Under that standard, claims are construed in accordance with their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art ("POSITA") at the time of the invention and the prosecution history pertaining to the patent. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

In light of the parties' arguments, we address the claim term "continuous playback." Pet. Reply 1–3; PO Sur-reply 4–8.

*1. "continuous playback"*

This term appears in independent claims 1 and 13. For example, limitation 1D of claim 1 recites "adapting the successive determinations to shift the playback quality based on the factor to achieve continuous playback of the video using the streamlets of the highest quality copy of the video that is determined to be sustainable at that time." Claim 13 recites a similar limitation.

Petitioner contends "[t]he claims' plain language only requires that the shift in playback quality is made 'to achieve continuous playback.'" Pet. Reply 1 (citing claim 1). According to Petitioner, "shifting quality 'to achieve continuous playback' is aspirational, not limiting, language." *Id.* (citing *Bristol-Myers Squibb Co. v. Ben Venue Labs.*, 246 F.3d 1368 (Fed. Cir. 2001)). Petitioner asserts that "[n]othing in the claims requires uninterrupted playback before, during, or after the shift in quality." *Id.*

Petitioner relies on intrinsic and extrinsic evidence. For intrinsic evidence, Petitioner points to the file history of the parent of the '156 patent. Pet. Reply 2. Citing the applicant's arguments distinguishing a prior art reference, Petitioner asserts the applicant "explained the recited claims ***automatically*** shift the quality 'to achieve continuous playback of the video,'" and therefore "[t]he distinction was between manual (prior art) or automatic (claims) changes in playback quality." *Id.* (citing Ex. 1018, 118). Citing the applicant's arguments distinguishing another prior art reference, Petitioner also asserts the "[a]pplicant represented that shifts 'happen on portion boundaries and the portion boundaries of the copies at the same time

index in the video' which '***mean***[s] playback is continuous.'" *Id.* (citing Ex. 1018, 486).

For extrinsic evidence, Petitioner points to the MOVE player, which Patent Owner describes as "the initial commercial embodiment of the claimed invention." Pet. Reply 3; PO Sur-reply 7. According to Petitioner, "[Patent Owner] asserts that the MOVE player meets 'continuous playback' despite concessions from its declarants that its playback was interrupted." Pet. Reply 3 (citing Ex. 1027, 208:15–219:12; Ex. 1032, 127:6–128:8; Ex. 1030, 211:18–213:21; Ex. 1034, 54:7–55:14, 71:12–75:8; Ex. 2022, 27; Ex. 1026 ¶ 39).

Patent Owner counters that "the plain and ordinary meaning of 'continuous playback' requires uninterrupted playback across quality shifts." PO Sur-reply 4 (capitalization and emphasis omitted). Patent Owner points to a related ITC investigation involving several patents including the '156 patent and asserts "the ITC's interpretation of ['continuous playback'] . . . was '***uninterrupted*** viewing of the content.'" *Id.* at 5 (citing Ex. 1009, 56 n.11[4, 5]).

Turning to the prosecution history of the '156 patent's parent, Patent Owner asserts the continuous playback limitation "was added by amendment ***to overcome a prior art reference***." PO Sur-reply 4. According to Patent Owner, the "applicant emphasized the amended claims required shifting quality '**to achieve continuous playback**' in contrast to [the prior art] which

[4] Page numbers refer to the Bates numbers in Exhibit 1009.
[5] Patent Owner cites the ITC's Initial Determination (Exhibit 1009), but omits the pincite. The quoted language appears at footnote 11 on page 56.

was 'marred by interruptions.'" *Id.* at 6 (citing Ex. 1018, 118[6]). Patent Owner contends "the amended language limits the claims." *Id.*

As to the MOVE player, Patent Owner contends "[t]he claims do not require eliminating ***all*** interruptions under ***every*** conceivable scenario." PO Sur-reply 7. Patent Owner asserts they require instead "a method of playback that automatically adjusts in response to network performance to ***avoid*** playback interruption," and, "[i]f that sometimes succeeds, the apparatus that achieves the continuous playback in the claim is within the scope of the claims." *Id.*

On the record before us, we determine the term "continuous playback" is limiting. The plain language of claim 1 requires an amount of continuous (uninterrupted) playback after an upshift or a downshift. *See* Ex. 1001, 3:23–36. Starting with the '156 patent, we note the specification teaches "the agent controller module is configured to upshift to a higher quality streamlet when the performance factor is greater than a threshold[] and the agent controller module determines the higher quality playback can be sustained according to a combination of factors." *Id.* at 3:23–30. The specification also teaches "[t]he agent controller module may be configured to downshift to a lower quality streamlet when the performance factor is less than a second threshold." *Id.* at 3:31–33. These teachings are reflected in limitations 1B1, 1B2, 1C, 1D, and 1E of claim 1, which recite steps for "stream[ing] the video" by the media player:

[6] Patent Owner cites Exhibit 1002 filed in the related case IPR2024-00919 involving the '156 patent's parent. We cite instead to corresponding Exhibit 1018 filed in this proceeding.

> [1B1] requesting sequential streamlets of one of the copies from the video server according to the playback times of the streamlets . . . ,
>
> [1B2] wherein the sequential streamlets are selected by the media player from the based upon successive determinations to *shift the playback quality to a higher or lower quality* one of the different copies of the video;
>
> [1C] repeatedly generating, by the media player, a factor relating to the performance of the network that is indicative of an *ability to sustain the streaming* of the video;
>
> [1D] adapting the successive determinations to shift the playback quality based on the factor *to achieve continuous playback* of the video using the streamlets of the highest quality copy of the video that is determined to be sustainable at that time; and
>
> [1E] presenting the video for playback by providing the requested streamlets in order of ascending start time.

(Emphases added.) Thus, claim 1 is directed in part to "achiev[ing] continuous playback" based on what is "sustainable," trading quality to ensure uninterrupted playback.

This understanding tracks the ITC Investigation, where the Administrative Law Judge (ALJ) explained "'the current ability to sustain the streaming of the video' relates to an analysis of network conditions, while the phrase 'continuous playback of the video' is the goal sought through the 'determinations to shift' playback quality."[7] Ex. 1009, 58–59. We note the ALJ did not go so far as to say "continuous playback" means "uninterrupted viewing of the content," as Patent Owner suggests. *See id.* at

[7] Here, the ALJ addressed claim 1 of a related patent, but noted "[c]laim 1 of the '156 patent is similar." Ex. 1009, 55. The related patent recites "the current ability to sustain the streaming of the video," whereas the '156 patent recites "an ability to sustain the streaming of the video." *Id.* at 54–55.

56 n.11 (explaining that the "[r]*espondents* concede 'at least in concept, a person of skill may have understood what it means to "achieve continuous playback" (uninterrupted viewing of the content).'" (Emphasis added.)).

Consistent with limitations 1B1, 1B2, 1C, 1D, and 1E, as well as the specification, however, we agree the plain meaning of "continuous playback" requires some uninterrupted playback. For example, there is no interruption between two streamlets with corresponding time indexes after shifting to a higher quality streamlet or after shifting to a lower quality streamlet. As another example, there is no interruption between a streamlet and a subsequent higher quality streamlet. As yet another example, there is no interruption between a streamlet and a subsequent lower quality streamlet. As still another example, two streamlets are played in order of ascending start time without interruption.

Requiring some uninterrupted playback also is consistent with the prosecution history of the '156 patent's parent. As Petitioner points out, the applicant distinguished its invention over the prior art on the basis that "shifts happen on portion boundaries and the portion boundaries of the copies at the same time index in the video – meaning playback is continuous." Ex. 1018, 486 (cited by Pet. Reply 2). That means that matching "the same time index in the video" across different quality copies of the video so the boundary at the end of a streamlet is aligned with the boundary at the start of the next streamlet of a different quality (*see* limitation 1A6) provides continuous playback at those boundaries (which allows for playing back the video in order of ascending start time according to limitation 1E). *See* Tr. 15:4–7 (Petitioner's counsel stating, "That's what

the applicant suggested. . . [C]ontinuous playback means that you're shifting along portion boundaries. In other words,.when you get one sub-file, you start the next sub-file where the other sub-file ended.").

Patent Owner does not dispute that "continuous playback" requires some uninterrupted playback. Indeed, Patent Owner asserts "[t]he plain and ordinary meaning of 'continuous playback' requires uninterrupted playback across quality shifts." PO Sur-reply 4 (capitalization and emphasis omitted). During oral argument, counsel for Patent Owner clarified Patent Owner's position on the meaning of "continuous playback":

> JUDGE HUDALLA: How continuous does continuous have to be? I mean, we put two sub-files together and they play uninterrupted, is that continuous?
>
> MR. WILLIAMS: I would say that definitely would qualify. Yeah.

Tr. 65:12–16; *accord id.* at 66:6–9 (Patent Owner's counsel stating, "But I would say at the very least, you would need two [subfiles] during a rate switch. So switching from one to the other, that played back continuously. So at the very least, you would need that."). According to Patent Owner, "[t]he claims do not require eliminating ***all*** interruptions under ***every*** conceivable scenario." PO Sur-reply 7. They just require uninterrupted playback of at least two subfiles across a quality shift (i.e., rate shift).

*2. Summary*

In view of the foregoing, we determine that "continuous playback" at least encompasses the presentation of a streamlet and a subsequent streamlet of a different quality without interruption after a rate shift. For example, there is no interruption when the subsequent streamlet is a higher quality

streamlet. As another example, there is no interruption when the subsequent streamlet is a lower quality streamlet. As noted above, our determination is consistent with the claim language, the specification, and the ITC's analysis.

It is not necessary to construe any other claim term explicitly. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that "we need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

### *B. Asserted Obviousness Over Leaning Alone*

Petitioner asserts that claims 1–18 of the '156 patent would have been obvious over Leaning. Pet. 16–49. Patent Owner disputes certain aspects of Petitioner's analysis. PO Resp. 18–30. For the reasons explained below, we determine Petitioner has demonstrated by a preponderance of the evidence that claims 1–18 would have been obvious over Leaning.

Before addressing the parties' arguments, we provide an overview of Leaning.

#### *1. Overview of Leaning*

Leaning is directed to "the delivery, over a telecommunications link, of digitally coded material for presentation to a user." Ex. 1004, 1:3–4. Figure 1 of Leaning is reproduced below.

Fig.1.

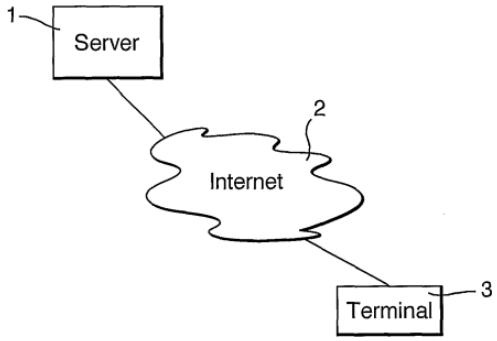



Figure 1 depicts a system where server 1 is connected via internet 2 to terminal 3. *Id.* at 2:15–16. Server 1 stores data files, and in response to a request for delivery of a data file from user terminal 3, server 1 transmits the file to terminal 3 via internet 2. *Id.* at 2:16–18. Although the system shown in Figure 1 delivers audio signals (for example, recorded music or speech), Leaning states that its system may also be used to deliver video signals. *Id.* at 2:5–9; *see also, e.g.*, *id.* at code (57), 16:6–10.

Figure 2 of Leaning is reproduced below.

Fig.2.

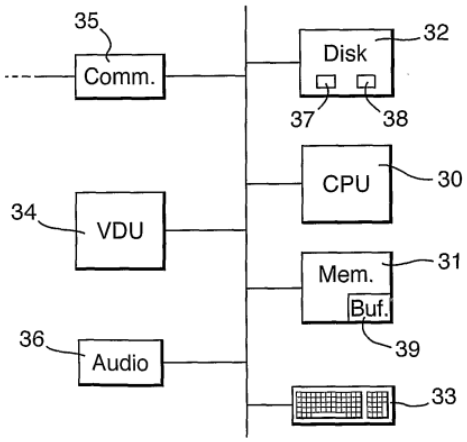



Figure 2 depicts terminal 3, which can take the form of a desktop computer, handheld computer, or mobile telephone. Ex. 1004, 4:4–7. Terminal 3

includes central processor 30, memory 31, disk store 32, keyboard 33, video display 34, communications interface 35, and interface 36. *Id.* at 4:7–9. Interface 36 can take the form of a sound card and/or a video card. *Id.* at 4:7–10. Memory 31 may include buffer 39. *Id.* at 4:15–16. Disk store 32 includes programs that may be retrieved into memory 31 for execution by processor 30. *Id.* at 4:10–11. For example, such programs may include communications program 37 for call-up and display of html (also known as HTML or Hypertext Markup Language) pages and player program 38 for playing audio and/or video files. *Id.* at 4:11–15, 16:6–10.

Leaning contemplates that server 1 may store two or more versions of a recording at different compression rates (e.g., recordings at compressions corresponding to continuous data rates of 8, 16, 24, and 32 kbit/s) such that player program 38 may switch automatically among them. Ex. 1004, 6:13–15. In this scenario, the recording is encoded several times at different rates and partitioned into sub-files. *Id.* at 6:21–23. The sub-files can be loaded onto server 1 in separate directories corresponding to each different rate, e.g., with "008k" and "024k" in the directory name indicating a rate of 8 kbit/s or 24 kbit/s, respectively. *Id.* at 6:23–26. An index file can be used to list the data rates that are available. *Id.* at 6:27–28. Player program 38 can trigger rate changes based on buffer status, the measured data rate, and the current (selected) data rate, for example. *Id.* at 8:6–26.

We turn now to the claims, starting with independent claims 1 and 13.

*2. Independent Claims 1 and 13*

Claim 1 is directed to "[a]n apparatus for rendering a video that is adaptively received as a digital stream from a video server over a network" and recites various limitations that Petitioner designates as limitations 1A1 through 1A6, 1B1, 1B2, 1C, 1D, and 1E. Claim 13 is directed to "[a] method executable by an end user device to stream a video received via a connection with a server over a network" and recites similar limitations as claim 1. For claim 13, Petitioner relies primarily on its analysis regarding claim 1. Pet. 46–48. Likewise, Patent Owner relies on the same analysis for claims 1 and 13. PO Resp. 18–30. Accordingly, our analysis for claim 1 applies to claim 13.

We address the preamble and recited limitations of claim 1, beginning with Petitioner's arguments and then turning to the parties' dispute.

*a. Preamble: "apparatus"*

Claim 1 recites as its preamble "[a]n apparatus for rendering a video that is adaptively received as a digital stream from a video server over a network." Petitioner asserts "Leaning discloses an apparatus (terminals 3) for rendering a video adaptively received as a digital stream from a video server (server 1) over a network (Internet 2)." Pet. 16–17 (citing Ex. 1003 ¶ 56; Ex. 1004, code (57), 1:3–29, 6:13–15, 16:6–10, claim 1, Fig. 1).

Patent Owner does not specifically dispute Petitioner's contentions regarding the preamble. *See* PO Resp. Although we do not determine whether the preamble is limiting, we are persuaded by Petitioner's argument

and evidence that Leaning teaches the subject matter of the preamble. *See* Pet. 16–17.

*b. Limitations 1A1 and 1A2: "media player"*

Limitation 1A1 recites "a media player operating on the apparatus." For this limitation, Petitioner asserts "Leaning discloses a media player (player program) operating on the apparatus (terminal 3)." Pet. 17–18 (citing Ex. 1003 ¶ 57; Ex. 1004, 4:4–15, 5:1–14). Leaning's player program refers to program 38, which may be executed on the terminal. Ex. 1004, 4:4–15; *see also id.* at Fig. 2.

In connection with limitation 1A1, limitation 1A2 recites "the media player is configured to stream the video from the video server via at least one transmission control protocol (TCP) connection over the network." For this limitation, Petitioner asserts "Leaning discloses that the media player (player program) is configured to stream the video from the video server (server 1) via at least one TCP connection over the network (Internet)." Pet. 18–19 (citing Ex. 1004, 2:5–32, 4:4–21). As support, Petitioner asserts "[a] POSITA would have understood Leaning's teachings of a terminal connecting to an ordinary web server via the Internet to request subfiles from the server using HTTP . . . to include teaching at least one TCP connection for such requests because a POSITA would have known that ordinary web servers supported both HTTP and TCP and that HTTP operates over TCP connections." *Id.* at 19 (citing Ex. 1003 ¶¶ 58–59; Ex. 1004, 5:8–14); *see also id.* at 20 (citing Ex. 1004, 2:10).

Patent Owner does not specifically dispute Petitioner's contentions regarding limitations 1A1 or 1A2. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Leaning teaches the recited media player of limitations 1A1 and 1A2. *See* Pet. 17–20.

*c. Limitation 1A3: "video server"*

Limitation 1A3 recites "the video server stores multiple different copies of the vide encoded at different bit rates as multiple sets of streamlets." For this limitation, Petitioner asserts "Leaning discloses that video server (server 1) stores multiple different copies (two or more versions of the recording) of the video encoded at different bit rates (compression rates)." Pet. 20–21 (citing Ex. 1003 ¶ 60; 1004, 6:13–26, 9:3–7, 16:6–12). Petitioner also asserts "Leaning further discloses that these multiple copies are stored as multiple sets of streamlets (sets of subfiles at each compression rate in appropriate directories)." *Id.* at 21–22 (citing Ex. 1003 ¶ 61; Ex. 1004, code (57), 3:5–22,[8] 5:4–6:8, 6:21–7:7, 12:8–34, 13:23–14:19); *id.* at 22 (citing Ex. 1004, 7 (table)).

Patent Owner does not specifically dispute Petitioner's contentions regarding limitation 1A3. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Leaning teaches the recited video server of limitation 1A3. *See* Pet. 20–22.

[8] Petitioner's citation to Leaning omits a portion of the pincite. The cited teaching appears at lines 5 through 22 of page 3.

*d. Limitations 1A4, 1A5, and 1A6: "streamlets"*

In connection with limitation 1A3, limitation 1A4 recites "each of the streamlets yields a different portion of the video on playback." Limitation 1A5 further recites "the streamlets across the different copies yield the same portions of the video on playback." Additionally, limitation 1A6 recites "the streamlets in the different copies are aligned in time such that the streamlets that play back the same portion of the video for the different copies each begin at the same playback time in relation to the beginning of the video."

For these limitations, Petitioner asserts "Leaning discloses that each of the streamlets (subfiles) yields a different portion (temporal portion) of the video on playback." Pet. 23 (citing Ex. 1003 ¶ 62; Ex. 1004, 1:3–29, Fig. 4). Petitioner also asserts "Leaning discloses that the streamlets (subfiles) across the different copies contain[] the same portions of the video on playback (*e.g.*, 000000.bin is the same portion of the video in each bitrate directory; 000001.bin is the same portion of the video in each bitrate directory; etc.) because each version has the same number of segments in the same order and having the same duration as each other." *Id.* at 23–25 (citing Ex. 1003 ¶ 63; Ex. 1004, code (57), 1:3–29, 3:5–18, 5:4–6:8, 6:21–7:2, 12:8–20). Lastly, Petitioner asserts "Leaning discloses that the streamlets (subfiles) in the different copies are aligned in time such that each begin at the same playback time in relation to the beginning of the video because each directory containing different bitrate copies of the video has the same number of subfiles in the same order with the same time durations encoding

the same portion of the video." *Id.* at 25–26 (citing Ex. 1003 ¶¶ 64–66; Ex. 1004, 12:6–20); *id.* at 26 (citing Ex. 1004, 7 (table)).

Patent Owner does not specifically dispute Petitioner's contentions regarding limitations 1A4, 1A5, or 1A6. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Leaning teaches the recited streamlets of limitations 1A4, 1A5, and 1A6. *See* Pet. 23–26.

*e. Limitation 1B1: "requesting sequential streamlets"*

Limitation 1B1 requires that "the media player streams the video by[] requesting sequential streamlets of one of the copies from the video server according to the playback times of the streamlets by transmitting hypertext transport protocol (HTTP) GET requests that identify the selected streamlets stored by the video server." This limitation can be divided into three parts: (1) requesting sequential streamlets, (2) according to the playback times of the streamlets, (3) by transmitting HTTP GET requests.

For the first part of limitation 1B1 (i.e., "requesting sequential streamlets of one of the copies from the video server"), Petitioner asserts "Leaning teaches requesting sequential streamlets (subfiles) of one of the copies from the video server (server 1)," and "Leaning further discloses that end user device (terminal 3) independently requests, via the player program, each of the sequential streamlets (subfiles) of one of the copies from the video server in order." Pet. 27–29 (citing Ex. 1003 ¶¶ 67–68; Ex. 1004, code (57), 1:12–19, 2:15–18, 5:4–6:2, 6:27–7:2, 8:6–16, claims 1, 11, 16).

For the second part of limitation 1B1 (i.e., "according to the playback times of the streamlets"), Petitioner asserts "Leaning teaches that the client

requests the segments 'according to the playback times of the streamlets.'" Pet. 29. Petitioner asserts in particular, "Leaning explicitly discloses that each sequential subfile is preferably the **same time duration** (*e.g.*, 4 seconds) such that a request for 000000.bin is a request for playback time 0–4 seconds; a request for 000001.bin is a request for playback time 4–8 seconds; and a request for 000003.bin is a request for playback time 8–12 seconds; and so on." *Id.* at 30 (citing Ex. 1004, 3:5–18, 5:4–6:8, 6:21–7:1, Fig. 4). According to Petitioner, "Leaning does disclose requesting according to the playback time because all the segments are 4 seconds in duration so the playback time of each segment is readily and accurately ascertainable." *Id.* (citing Ex. 1003 ¶¶ 72–73).

Under an alternative theory, Petitioner asserts "[t]o the extent requesting according to the playback time requires some indication of the playback time to be a part of each subfile request, this limitation would have been obvious to a POSITA in view of Leaning." Pet. 30 (citing Ex. 1003 ¶ 74). Petitioner explains, "Though Leaning's exemplary naming convention provided is to name each subfile with a number in ascending order . . . [,] Leaning also teaches that 'any naming convention can be used' for the subfiles." *Id.* at 30–31 (citing Ex. 1004, 3:10–11, 6:5–8). According to Petitioner, "a POSITA would have understood that each subfile could be named (and therefore requested) according [to] its playback time instead of as an integer," and "[w]hen such files are requested by subfile name as taught by Leaning . . . , they are thus requested 'according to their playback times' because they are named according to their playback times." *Id.* at 31 (citing Ex. 1003 ¶ 75; Ex. 1004, 15:19–28). Petitioner adds,

> [A] POSITA would have been motivated to name segments (subfiles) according to their playback times in this way because it still would allow for ordering the subfiles in proper playback order such that when a POSITA viewed the directory of files saved on the servers the subfiles would be listed in order of how they will be played and it would provide the benefit of ascertaining an estimate of the overall length of the recording by simply viewing the name of the file segment in the directory. . . . A POSITA would have had reasonable expectation of success with such a modification because it would simply involve changing the naming convention for the file names of subfiles stored on the server—which was contemplated by Leaning.

*Id.* at 31–32 (citing Ex. 1003 ¶ 75).

For the third part of limitation 1B1 (i.e., "by transmitting hypertext transport protocol (HTTP) GET requests that identify the selected streamlets stored by the video server"), Petitioner asserts "Leaning teaches that the client requests may be made by transmitting HTTP GET requests." Pet. 32 (citing Ex. 1003 ¶ 76). Petitioner asserts "Leaning discloses that the player requests subfiles from the conventional web server using 'the Hypertext Transfer Protocol' and cites to RCFs for HTTP 1.0 and HTTP 1.1 protocols." *Id.* (citing Ex. 1004, 2:5–32); *see also id.* (citing Ex. 1003 ¶¶ 77–78; Ex. 1004, 3:28–31). Petitioner further asserts "[a] POSITA considering the disclosures of Leaning (*i.e.*, operating via HTTP between a client and an ordinary web server to request and receive files) would have understood that HTTP required ordinary web servers to support HTTP GET requests and thus would have understood Leaning's disclosure of a terminal using HTTP to request subfiles from a server to include teaching the use of HTTP GET requests." *Id.* at 32–33 (citing Ex. 1003 ¶ 78). Petitioner adds that "an HTTP GET request is 'used to identify a resource on an origin

server or gateway,'" and, "[t]hus, a POSITA would have understood . . . Leaning to teach that the player program makes HTTP GET requests for each sequential subfile." *Id.* at 33 (citing Ex. 1003 ¶ 79).

Under an alternative theory, Petitioner asserts "to the extent it is deemed necessary, a POSITA would have been motivated to modify Leaning to make its requests for subfiles from servers via standard HTTP GET requests because GET requests are one of a finite number of identified methods available in the HTTP protocol, and thus one of a finite number of identified predictable solutions . . . for requesting files from a server with a reasonable expectation of success." Pet. 33–34 (citing Ex. 1003 ¶ 80).

Patent Owner does not specifically dispute Petitioner's contentions regarding limitation 1B1. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Leaning teaches limitation 1B1. *See* Pet. 27–34. We also are persuaded by Petitioner's proffered reasoning for modifying Leaning. *See id.* at 30–34; *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.").

*f. Limitation 1B2: "sequential streamlets are selected . . . based upon successive determinations"*

In connection with limitation 1B1, limitation 1B2 recites "the sequential streamlets are selected by the media player from the based upon successive determinations to shift the playback quality to a higher or lower quality one of the different copies of the video." For this limitation, Petitioner asserts "Leaning discloses sequential streamlets selected by the media player." Pet. 34. Petitioner further asserts "this selection is from the

based upon *[sic]* 'successive determinations,'" where "the player program makes multiple determinations one after the other before shifting up quality and before shifting down in quality." *Id.*; *see also id.* at 34–35 (citing Ex. 1004, 8:17–26 (describing the logic for initiating a rate change)). Petitioner adds,

> Once the successive determinations conclude that the player should shift up or shift down, "rate change is effected simply by the player program changing the relevant part of the sub-file address for example, changing '008k' to '024k' to increase the data rate from 8 to 24kbit/s and changing the current rate parameter to match" and "the next request to the server becomes a request for the higher (or lower) rate, and the sub-file from the new directory is received, decoded and entered into the buffer."

*Id.* at 34–36 (quoting Ex. 1004, 9:3–7) (citing Ex. 1003 ¶¶ 81–82; Ex. 1004, 9–11 (flowchart), claims 4–6, 11, 12).

Patent Owner does not specifically dispute Petitioner's contentions regarding limitation 1B2. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Leaning teaches limitation 1B2. *See* Pet. 34–36.

*g. Limitation 1C: "repeatedly generating . . . a factor relating to the performance of the network"*

Limitation 1C requires that "the media player streams the video by[] . . . repeatedly generating, by the media player, a factor relating to the performance of the network that is indicative of an ability to sustain the streaming of the video." Petitioner asserts that Leaning teaches this limitation "because [Leaning] teaches repeatedly generating a 'measured rate' (*i.e.*, the measured actual data rate being received from the server, averaged over a period of time) and comparing it to a 'current rate' (*i.e.*, the

bitrate of the current stream) to determine if the current stream is sustainable." Pet. 36 (citing Ex. 1004, 8:7–26, claims 5, 6). Petitioner also asserts "Leaning repeatedly generates another factor ('Buffer Low Percentage') which is 'the percentage of time that the buffer contents represent less than 20% of the playout time (i.e. the buffer is getting close to being empty).'"[9] *Id.* (citing Ex. 1004, 8:27–28). In addition, Petitioner asserts "Leaning also explains 'that interruption' of the video stream 'can be avoided and therefore it is preferable to employ a criterion which anticipates underflow and avoids it in the majority of cases' by omitting the first determination (*i.e.*, whether the buffer is completely empty) and generating measured rate and Buffer Low Percentage factors as indicators of whether the current streaming rate is sustainable." *Id.* at 36–37 (citing Ex. 1003 ¶¶ 83–84; Ex. 1004, 15:3–8, 8:11–11:1).

Patent Owner does not specifically dispute Petitioner's contentions regarding limitation 1C. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Leaning teaches limitation 1C. *See* Pet. 36–37.

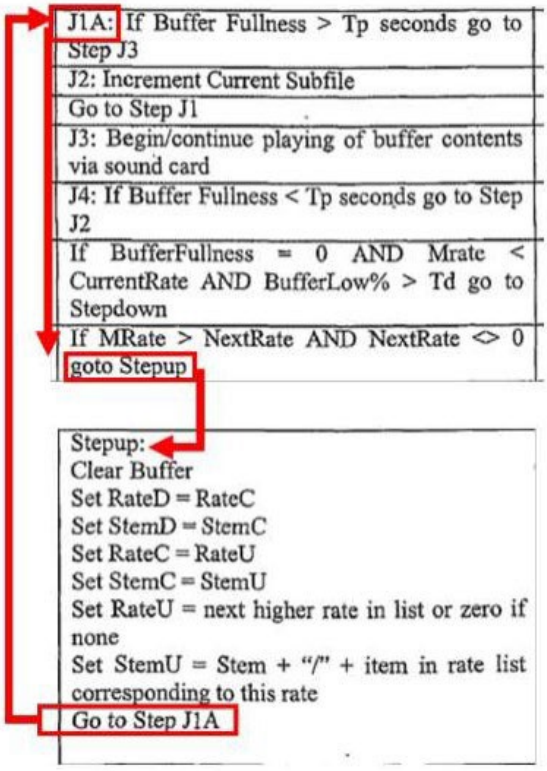
*h. Limitation 1D: "adapting the successive determinations"*

Limitation 1D requires that "the media player streams the video by[] . . . adapting the successive determinations to shift the playback quality based on the factor to achieve continuous playback of the video using the streamlets of the highest quality copy of the video that is determined to be

[9] Petitioner misquotes Leaning. The Buffer Low Percentage is the percentage of time the buffer contents represent less than *25%* (not *20%*) of the playout time. Ex. 1004, 8:27–28.

sustainable at that time." For this limitation, Petitioner asserts "Leaning discloses adapting the successive determinations to shift the playback quality based on generated factors to achieve continuous playback of the video using the streamlets (subfiles) of the highest quality copy of the video that is determined to be sustainable at that time." Pet. 37. Petitioner asserts "Leaning teaches choosing the highest quality copy that is sustainable (*i.e.*, if measured rate > current rate AND measured rate > next highest rate for period of time, then shift up until no longer true—meaning shift up to highest sustainable version)." *Id.* at 37–38 (citing Ex. 1004, 8:24–26, 9:3–7, 9–11 (flowchart)).

To illustrate, Petitioner provides a figure of an annotated portion of a flowchart in Leaning, reproduced below. Pet. 39 (citing Ex. 1004, 10).



Petitioner's figure shows a portion of Leaning's process for initiating a rate change. *See* Ex. 1004, 8–11. Referring to its figure, Petitioner asserts "Leaning discloses looping 'Stepup' until the highest sustainable rate is achieved up to the highest available rate (by setting RateU to zero)." *Id.* at 38. (citing Ex. 1003 ¶ 85; Ex. 1004, 10 (flowchart)).

Patent Owner makes several arguments regarding limitation 1D, which we will address below in a separate section. *See infra* Part III.B.2.j.

*i. Limitation 1E: "presenting the video for playback"*

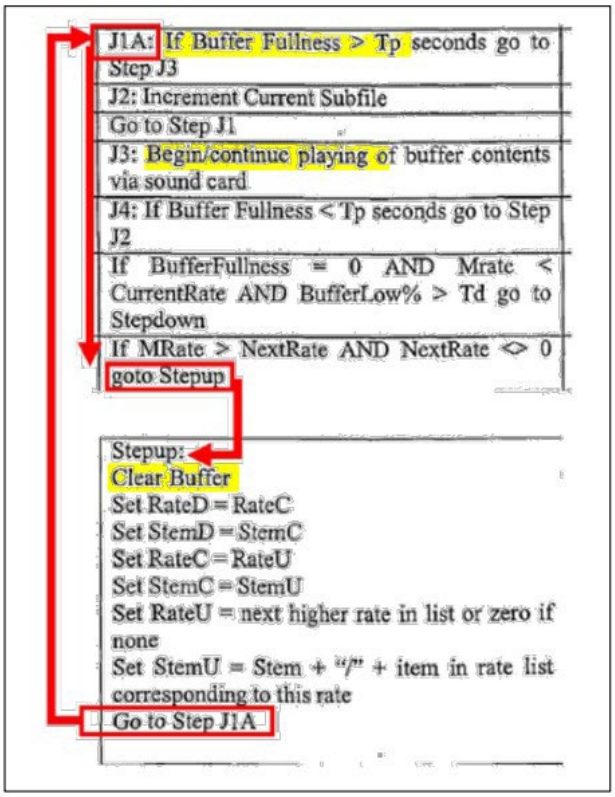
Lastly, limitation 1E requires that "the media player streams the video by[] . . . presenting the video for playback by providing the requested streamlets in order of ascending start time." For this limitation, Petitioner asserts "Leaning teaches decoding and presenting the subfiles of the video for p[l]ayback in order of ascending start time." Pet. 39 (citing Ex. 1003 ¶ 86; Ex. 1004, 1:13–28, 4:4–21, 5:23–6:2, 12:16–18, 14:6–11, claim 1).

Patent Owner does not specifically dispute Petitioner's contentions regarding limitation 1E. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Leaning teaches limitation 1E. *See* Pet. 39.

*j. The Parties' Dispute*

As noted above, Patent Owner disputes Petitioner's analysis for limitation 1D, which recites in part "shift the playback quality . . . to achieve continuous playback." Patent Owner argues Petitioner fails to show Leaning teaches this aspect of limitation 1D, relying instead on "disclosures of Leaning that ***disrupt*** playback." PO Resp. 18, 23 (citing Ex. 2141 ¶ 65). To

illustrate its position, Patent Owner provides an annotated version of Petitioner's figure (which is based on Leaning's flowchart for initiating a rate change), reproduced below. *Id.* at 18 (citing Pet. 39).




Patent Owner's figure, which is based on Petitioner's figure (*see* Pet. 39), shows a portion of Leaning's process for initiating a rate change. *See* Ex. 1004, 8–11. Referring to its figure, Patent Owner asserts "the yellow highlighted portions . . . establish that ***every time*** Leaning performs the purported upshift, at the 'Stepup' routine, it clears the buffer ('Clear Buffer') and then ***waits*** until the buffer is refilled ('If Buffer Fullness > Tp') before resuming playback ('Begin/continue playing')." PO Resp. 21–22. Patent Owner further asserts that "during ***every shift***, Leaning consistently teaches clearing the buffer then restarting the process to re-fill the buffer with Tp seconds of content," which "causes the loss of audio content and introduces

both temporal and content discontinuities." *Id.* at 22 (citing Ex. 2141 ¶ 72); *see also* PO Sur-reply 9. According to Patent Owner, "Petitioner's own [figure] therefore shows that Leaning's playback is ***not*** 'continuous,' during a rate shift, as required by element [1D]." PO Resp. 22.

Petitioner counters that "Leaning teaches that buffer clearing is not required." Pet. Reply 5; *see also id.* at 9–10 (asserting "video playback did not require a hardware reset (or the accompanying buffer clearing) during rate switching"). Petitioner asserts its Petition "relied on Leaning's teachings regarding avoiding playback interruption by avoiding underflow, i.e., achieving continuous playback." *Id.* at 3. Petitioner points specifically to its assertion in the Petition that "Leaning . . . explains 'that ***interruption***' of the video stream '***can be avoided*** and therefore it is preferable to employ a criterion which anticipates underflow and avoids it in the majority of cases' by omitting the first determination (*i.e.,* whether the buffer is completely empty)." *Id.* at 3–4 (quoting Pet. 36–37). For audio delivery, Petitioner asserts "Leaning describes . . . 'run[ning]' the sound card '***continuously*** at the highest sampling rate envisaged' to avoid 'interruption[s]' in audio due to 're-setting' the sound card." *Id.* at 4 (citing Ex. 1004, 14:25–15:8; Ex. 1026 ¶¶ 61–66); *see also* Pet. 36–37 (citing Ex. 1004, 15:3–8). According to Petitioner, "Leaning teaches[] by running the sound card 'at the highest sampling rate envisaged' and up-sampling all audio to the highest rate before placement in the buffer, the system can adjust the communicated data rate based on network conditions without

clearing the buffer." Pet. Reply 4 (citing Ex. 1026 ¶¶ 61–84[10]; Ex. 2129, 95:4–97:23).

We agree with Petitioner that Leaning does not require buffer clearing. Leaning says,

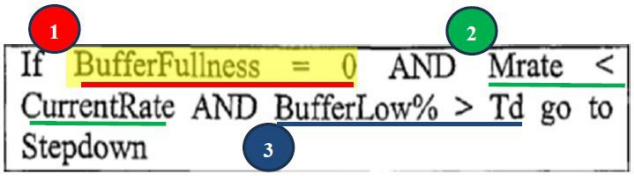
> Recollecting that the criteria discussed earlier [and shown in the flowchart] for automatic data rate switching downwards envisaged a rate reduction only in cases of buffer underflow (involving therefore interruptions in the output), we note that *with this modification such interruption can be avoided and therefore it is preferable to employ a criterion which anticipates underflow and avoids it* in the majority of cases. In this case the first of the three AND conditions mentioned above (namely, that the buffer is empty) would be omitted.

Ex. 1004, 15:3–8 (emphasis added) (cited by Pet. 36–37). In other words, Leaning proposes an *alternative* embodiment that *avoids buffer underflow* so that interruption can be avoided. *Id.* Moreover, Leaning explains that "a freezing of the picture . . . may or may not be *subjectively* acceptable on rate-switching," and when "[it] is acceptable . . . one would *probably choose* to clear the buffer." *Id.* at 18:19–23 (emphases added) (cited by Pet. Reply 10). Also, Leaning explains that "[i]n the case of rate switching, it is, *if not actually essential, highly desirable* that the sub-file boundaries are the same for each rate, so that the first sub-file received for a new rate continues from the same point in the recording that the last sub-file at the old rate ended." *Id.* at 12:16–18 (emphasis added) (cited by Pet. 25, 39; Pet. Reply 5–6). As Petitioner asserts, "[t]his would not be possible if content were discarded."

[10] Petitioner cites Section VII.C of Exhibit 1026, which corresponds to paragraphs 61 through 84 of Exhibit 1026.

Pet. Reply 5–6. Accordingly, Leaning does not require buffer clearing so that interruptions can be avoided.

We note Patent Owner's contention that Petitioner "fail[s] to address Leaning's teaching that it will only perform a 'Stepdown'—a critical step for responding to deteriorating network conditions—after the occurrence of multiple 'buffer empties.'" PO Sur-reply 9 (citing Ex. 2141 ¶ 91). Patent Owner asserts Petitioner's "theories focus on deleting or removing the 'clear buffer' instruction from Leaning's downshift process and omitting the first of three downshift conditions" but "ignore the third condition, which results in playback disruptions regardless of whether the first condition is omitted." *Id.* at 10–11 (citing Pet. Reply 3–4; Ex. 2124 ¶ 91); *id.* at 12 n.7. To illustrate its position, Patent Owner provides an annotated excerpt from Leaning's disclosure of the three conditions, reproduced below. *Id.* at 11 (citing Ex. 1004, 10).




According to Patent Owner, "the third condition—BufferLow% > Td—requires the buffer to experience 'multiple empties' when Td is set to Leaning's 'preferred default value,' confirming that the current 'rate can not be sustained.'" *Id.* (citing Ex. 1004, 8:27–9:2; Ex. 2141 ¶ 91). In Leaning, Td represents the Step Down Threshold. Ex. 1004, 8:18–20; *id.* at 10 (flowchart). Patent Owner asserts "Leaning specifies the buffer 'will eventually empty [] again' until Td is exceeded." PO Sur-reply 11. According to Patent Owner, Petitioner "rel[ies] on this distinct 'buffer

empty' condition in Leaning but never allege[s]—let alone explain[s]—how a POSITA could avoid it." *Id.*

We disagree. Patent Owner's argument is based on Leaning's embodiment where all three conditions are considered, including the first condition ("if the buffer ever empties"). *See* Ex. 1004, 8:18–20 ("[I]f the buffer ever empties AND the measured rate is less than the current rate AND the measured Buffer Low Percentage exceeds a Step Down Threshold . . . , reduce the current rate."); *see also id.* at 8:28–30 (considering "when the buffer empties"); *id.* at 8:30–32 (considering "if the buffer empties"); *id.* at 8:31–9:2 (describing "[f]urther buffer empties"); *id.* at 10 (considering "[i]f BufferFullness = 0"). As discussed above, however, Leaning teaches an alternative embodiment that avoids interruption in output. *Id.* at 15:3–6 ("[W]e note that with this modification such interruption can be avoided."). Leaning's alternative embodiment "employ[s] a criterion which *anticipates underflow and avoids it* in the majority of cases." *Id.* (emphasis added). That criterion implies Leaning does not in most cases contemplate a buffer empty at all, let alone multiple buffer empties, in the alternative embodiment. Patent Owner appears to ignore Petitioner's reliance on Leaning's alternative embodiment. *See* Pet. 36–37 (citing Ex. 1004, 15:3–8); Pet. Reply 3–4.

By focusing on Leaning's "preferred default value" for the Step Down Threshold, Patent Owner also appears to ignore Leaning's teaching that "[t]he Buffer Low Percentage is the percentage of the time that the buffer contents represent less than 25% of the playout time (i.e. the buffer is getting close to being empty)," and that "[i]f the Step Down Threshold is set to 0%

then when the buffer empties the system always steps down when the other conditions are satisfied." *See* PO Sur-reply 11 ("[T]he third condition . . . requires the buffer to experience 'multiple empties' when Td [Step Down Threshold] is set to Leaning's 'preferred default value.'"); Ex. 1004, 8:27–32 (discussing different values for the Step Down Threshold). Based on Leaning's teachings, setting the Step Down Threshold to 0% in the alternative embodiment (where buffer underflow is avoided and the first condition is not considered) means the system will step down when the second condition is satisfied (i.e., the measured rate is less than the current rate) and the third condition is satisfied (i.e., Buffer Low Percentage is greater than Step Down Threshold). Leaning does not say the buffer experiences any empties at all when the first step, "if the buffer ever empties," is avoided (as Leaning teaches) and the Step Down Threshold is set to 0% or to its preferred value of 5%. *See* Ex. 1004, 8:17–32.

Patent Owner further argues "Petitioner[] failed to show, or even argue, that a POSITA would have had a reasonable expectation of success in implementing any of its proposed modifications." PO Sur-reply 10.

This argument seems to be misplaced. Petitioner does not propose modifying any of Leaning's teachings. Rather, Petitioner relies on an alternative embodiment in Leaning (which "employ[s] a criterion which anticipates underflow and avoids it"). *See* Ex. 1004, 15:3–6. That is, Petitioner relies on Leaning's express disclosures. Patent Owner acknowledges this fact. *See* PO Sur-reply 12 ("Leaning proposes an alternative embodiment." (Citing Ex. 1004, 15:3–6.)). Petitioner therefore need not address whether a POSITA would have had a reasonable

expectation of success in implementing an alternative embodiment disclosed expressly in Leaning.[11]

Patent Owner alleges Petitioner proposes modifying Leaning's teachings to avoid interruption by "remov[ing] Leaning's 'clear buffer' instruction based on a passage from Leaning suggesting that sound cards may be run 'continuously at the highest sampling rate envisaged.'" PO Sur-reply 11–12 (citing Pet. Reply 4 (citing Ex. 1004, 14:25–15:8)). According to Patent Owner, "the 'interruption' being avoided is solely the interruption due to underflow that occurs for the 'BufferFullness=0' condition," not "the interruption that results from the act of downshifting itself (*i.e.*, clearing and refilling the buffer)." PO Sur-reply 12; *see also id.* at 12–13 (discussing same). Patent Owner adds that Petitioner's proposed modification is a new argument that was not disclosed in the Petition. *Id.* at 9, 11.

We disagree with Patent Owner. Petitioner's citation to Leaning in the Petition focuses on the teaching that interruption can be avoided by avoiding buffer underflow. Pet. 36–37 (citing Ex. 1004, 15:3–8 ("[W]ith this modification such interruption can be avoided and therefore it is preferable to employ a criterion which anticipates underflow and avoids it.")). Petitioner's reference to sound cards in its Reply provides an example of how the cited teaching from Leaning can be applied for audio delivery.

[11] We note Patent Owner alleges that Petitioner raises new obviousness theories that propose "modify[ing] Leaning's 'playout time'" (*see* PO Sur-reply 14–15) and "modifying video codecs to avoid Leaning's express 'mistracking' issues" (*see id.* at 16–18 (capitalization and emphasis omitted)). Our analysis does not rely on these alleged proposed modifications. Accordingly, we do not address Patent Owner's arguments regarding them.

Pet. Reply 4 ("Leaning describes the identified modification as 'run[ning]' the sound card '***continuously*** at the highest sampling rate envisaged' to avoid 'interruption[s]' in audio due to 're-setting' the sound card." (Citing Ex. 1004, 14:25–15:8.)). It does not raise a new obviousness argument.

Moreover, Leaning appears to be concerned with avoiding any interruptions in the output, not just those "due to underflow that occurs for the 'BufferFullness=0' condition," as Patent Owner argues. *See* PO Sur-reply 12. It is true that Leaning says "buffer underflow []involv[es] therefore interruptions in the output," and that Leaning teaches omitting the condition "the buffer is empty." Ex. 1004, 15:3–8 (cited by PO Sur-reply 12). As discussed above, however, Leaning does not require buffer clearing so that interruptions can be avoided. *See* Ex. 1004, 15:3–6 ("[*I*]*nterruption can be avoided* and therefore it is preferable to employ a criterion which *anticipates underflow and avoids it*." (Emphases added.)); *id.* at 18:19–23 ("In switching from fast to normal play [a freezing of the picture] is acceptable – indeed one would *probably choose* to clear the buffer at this point. It may may or may not be *subjectively* acceptable on rate-switching." (Emphases added.)); *see also id.* at 12:16–18 ("In the case of rate switching, it is, *if not actually essential, highly desirable* that the sub-file boundaries are the same for each rate, so that the first sub-file received for a new rate continues from the same point in the recording that the last sub-file at the old rate ended.").

Patent Owner further argues "playback interruption is still present when upshifting" in Leaning because "the teaching cited by Petitioner[] applies only to downshifts." PO Sur-reply 13.

Patent Owner's argument is unavailing. It is not clear why playback interruption would still be present when upshifting if Leaning prefers to avoid interruptions. *See* Ex. 1004, 15:3–6 ("[I]nterruption can be avoided and therefore it is *preferable* to employ a criterion which anticipates underflow and avoids it." (Emphasis added.)). For example, buffer clearing is not required in Leaning so interruptions can be avoided. Leaning does not limit its teachings in that regard to downshifting. As discussed above, Leaning explains "a freezing of the picture . . . may or may not be subjectively acceptable on *rate-switching*," and when "[it] is acceptable . . . one would probably choose to clear the buffer." *Id.* at 18:19–23 (emphasis added). Leaning also explains that "[i]n the case of *rate switching*, it is, if not actually essential, highly desirable that the sub-file boundaries are the same for each rate, so that the first sub-file received for a new rate continues from the same point in the recording that the last sub-file at the old rate ended." *Id.* at 12:16–18 (emphasis added).

Referring to both downshifting and upshifting, Patent Owner also asserts "Leaning warns against using overly long sub-files, noting that they introduce 'extra delay' when rate switching, because the entire file must be downloaded before playback can resume." PO Sur-reply 13 (citing Ex. 1004, 12:31–33). According to Patent Owner, "[t]his . . . assumes an unavoidable pause during each rate change—one that is extended, not eliminated, by longer file lengths." *Id.*

We disagree with Patent Owner. As discussed above, Leaning avoids buffer underflow and does not require buffer clearing. Ex. 1004, 12:16–18,

15:3–8, 18:19–23. In the absence of buffer underflow and buffer clearing, it is unclear why there would be any "unavoidable pause" or "extra delay."

Patent Owner further argues Petitioner "alleges that Leaning's buffer-clearing behavior in ***audio*** could be avoided by applying the same 'up-sampling' logic to ***video***," but that "Leaning's suggestion to up-sample audio to avoid a reset does not—and cannot—extend to video." PO Sur-reply 14 (citing Pet. Reply 9–10). Patent Owner also says that Petitioner's allegation raises a "new obviousness theory." *Id.*

Patent Owner's argument is unavailing. In its Reply, Petitioner explicitly states "video playback did not require a hardware reset (or the accompanying buffer clearing) during rate switching." Pet. Reply 9 (citing Ex. 1026 ¶¶ 61–84). As discussed above, Petitioner additionally asserts it relies on "Leaning's teachings regarding avoiding playback interruption by avoiding underflow, i.e., achieving continuous playback." *Id.* at 3. Petitioner points specifically to its Petition, which says "Leaning . . . explains 'that ***interruption***' of the video stream '***can be avoided*** and therefore it is preferable to employ a criterion which anticipates underflow and avoids it.'" *Id.* at 3–4 (quoting Pet. 36–37). Petitioner also cites further passages in Leaning supporting that buffer clearing is not required. *See id.* at 5–6 (citing Ex. 1004, 12:16–18); *id.* at 10 (citing 18:19–23). Contrary to Patent Owner's position, Petitioner does not apply Leaning's up-sampling technique to video; rather, Petitioner applies Leaning's disclosures about avoiding interruptions.

Patent Owner further argues "Petitioner cites almost exclusively to Leaning's discussion of rate shifting ***audio*** in its invalidity arguments" even

though "[e]very claim of the '156 [p]atent is directed to rate shifting ***video***." PO Resp. 25. Although Patent Owner recognizes Petitioner's contention that the "same principle [applied to the delivery of audio recordings] may be applied to the delivery of video recordings," Patent Owner asserts "Leaning itself acknowledges that there are 'further implications' when applying this 'same principle' to video recordings." *Id.* (citing Pet. 21; Ex. 1004, 16:6–7, 16:17–18; Ex. 2141 ¶ 67). According to Patent Owner, "[t]hese 'further implications' include 'serious mistracking of the decoder,'[] which is yet another manner in which Leaning's rate shifting interrupts 'playback.'" *Id.* at 26 (citing Ex. 1004, 16:20–31; Ex. 2141 ¶ 67); *see also id.* at 27–30 (discussing the mistracking problem).

Petitioner counters that "Leaning acknowledges that there are 'further implications' for video . . . [but] ***also teaches how to address them***." Pet. Reply 6. Petitioner asserts Leaning proposes solving the mistracking problem, for example, by applying another patent's teachings. *Id.* at 9 (citing Ex. 1004, 16:24–25, 16:30–31, 17:7–10, 18:18–19:5; Ex. 1026 ¶¶ 85–126[12]); *see also id.* at 7–9 (discussing Leaning's approach to solving "further implications"). Petitioner adds that "[f]or 'switching' between rates, Leaning teaches . . . if each frame of a picture is 'coded independently,' 'it is sufficient that a sub-file contains a whole number of frames of a picture' for video playback," which, according to Petitioner, means "[t]here are no 'further implications' for these videos." *Id.* at 6–7 (citing Ex. 1004, 16:18–20).

[12] Petitioner cites Sections VIII.A–B of Exhibit 1026, which corresponds to paragraphs 84 through 126 of Exhibit 1026.

We agree with Petitioner. Leaning explains, "As in the audio case, there may be two or more [video] recordings corresponding to different data rates," but "[t]he delivery of video recordings does . . . have further implications for file partitioning if [rate] switching . . . [is] to be permitted." Ex. 1004, 16:11–12, 16:17–18. Leaning says specifically that "[i]n the case of *inter-frame* coding systems . . . serious mistracking of the decoder would occur." *Id.* at 16:24–31 (emphasis added); *see also* PO Resp. 28 ("Leaning expressly discloses that 'mistracking' will occur when rate switching between videos compressed via these 'inter-frame' coding techniques."). As Petitioner points out, however, Leaning addresses the mistracking problem by using bridging sequences as taught by another patent. Ex. 1004, 16:24–25 (discussing "the case of inter-frame coding systems"), 16:30–31 ("[S]erious mistracking of the decoder would occur."), 17:7–10 ("[T]he [mistracking] problem can be solved by . . . the encoding of an intermediate sequence of frames which bridges the gap between the last frame of the preceding sequence and the first frame of the new sequence."), 18:18–19:5 ("Exactly the same [bridging] process could be used for rate-switching. . . . An alternative . . . would be to construct a four-second bridging sequence."). Patent Owner's concern about mistracking therefore does not adequately undermine Petitioner's showing for limitation 1D.

Moreover, Leaning says that "[i]n the case of [video] recordings where each frame of a picture is coded independently, it is sufficient that a sub-file contains a whole number of frames of a picture." Ex. 1004, 16:18–20. In Leaning, independently coded frames are called *intra-frames*. *Id.* at 16:21–23. Petitioner asserts "[t]here are no 'further implications' for these

videos." Pet. Reply 6–7. Patent Owner does not appear to dispute Petitioner on this point. *See* PO Resp. 28 ("'Mistracking' arises for video, but not audio, because each frame of an audio file is ***independently*** decodable without any dependencies between frames.").

Based on the record before us, we find that Leaning teaches limitation 1D.

In view of the foregoing, we find that Leaning teaches all the limitations of claim 1. Because our analysis for claim 1 applies to claim 13, we also find that Leaning teaches all the limitations of claim 13.

*3. Dependent Claim 2*

Claim 2 depends from claim 1 and recites "the apparatus is configured to establish multiple Transmission Control Protocol (TCP) connections with a content server, and request streamlets of varying bitrates." For this limitation, Petitioner cross-references its discussion of claim limitation 1A2. Pet. 40. In that discussion, Petitioner asserts "[a] POSITA would have understood Leaning's teachings of a terminal connecting to an ordinary web server via the Internet to request subfiles from the server using HTTP . . . to include teaching at least one TCP connection for such requests because a POSITA would have known that ordinary web servers supported both HTTP and TCP and that HTTP operates over TCP connections." *Id.* at 19–20 (citing Ex. 1003 ¶¶ 58–59; Ex. 1004, 2:10, 5:8–14). As to claim 2 in particular, Petitioner adds that "Leaning discloses operating over the Internet using HTTP and teaches using more than one TCP connection at least because Leaning teaches use of HTTP 1.0." *Id.* at 40. According to

Petitioner, "a POSITA would have known [HTTP 1.0] requires a new TCP connection for each subfile request and thus by requesting sequential subfiles Leaning teaches establishing multiple TCP connections with a content server, and requesting sequential streamlets (subfiles) of varying bitrates due to rate switching." *Id.* Petitioner relies on the declaration testimony of Dr. Houh. *Id.* (citing Ex. 1003 ¶ 87).

Patent Owner counters that "Leaning . . . never mentions, nor has any use for, multiple TCP connections." PO Resp. 31; *see id.* at 31–34. Patent Owner asserts "Leaning does not disclose use of HTTP 1.0," and "a POSITA would have understood that Leaning's reference to 'HTTP' refers to HTTP 1.1, which . . . used persistent TCP connections wherein a client could make multiple requests of a server on a single TCP connection." *Id.* at 34. According to Patent Owner, "Leaning's references to 'HTTP' do not constitute a suggestion that parallel connections are used and, given the ubiquity of persistent HTTP connections at the time, actually teach away from such use." *Id.* at 34–35. Patent Owner relies on the declaration testimony of Dr. Jeffay. *Id.* (citing Ex. 2141 ¶ 112).

In reply, Petitioner asserts that "Leaning expressly . . . rel[ies] on HTTP 1.0 as RFC 1945," and that "HTTP 1.1 explicitly contemplates multiple TCP connections between a single client and server even with persistent connections." Pet. Reply 13 (citing Ex. 1004, 2:10). Regarding HTTP 1.0, Petitioner points to Dr. Jeffay's deposition testimony as well as a memorandum identifying RFC 1945 as HTTP 1.0 for support. *Id.* (citing Ex. 1027, 79:3–6; Ex. 1028). Regarding HTTP 1.1, Petitioner points to a different memorandum that describes HTTP 1.1. *Id.* (citing Ex. 1047, 47).

On the record before us, we agree with Petitioner. Claim 2 requires in part that "the apparatus is configured to establish multiple Transmission Control Protocol (TCP) connections with a content server." Leaning teaches that its "network operat[es] in accordance with the Hypertext Transfer Protocol (see RFCs 1945/2068 for details)." Ex. 1004, 2:9–11. As Petitioner contends, RFC 1945 refers to HTTP 1.0. *See* Ex. 1028 (memorandum identifying RFC 1945 as HTTP/1.0). Indeed, Patent Owner's declarant Dr. Jeffay testified during his deposition that he "agree[s] that Leaning discloses the use of HTTP/1.0 . . . [a]t least in its reference to RFC 1945." Ex. 1027, 79:3–6; *see also* Ex. 1047, 7 (describing "HTTP/1.0, as defined by RFC 1945"). Patent Owner does not appear to dispute that HTTP 1.0 uses parallel connections. PO Resp. 34–35 ("Leaning does not disclose use of HTTP 1.0. . . Leaning's reference to 'HTTP' refers to HTTP 1.1., which was in widespread use at the time and, by default, used persistent TCP connections…. Leaning's references to 'HTTP' do not constitute a suggestion that parallel connections are used.").

Turning to HTTP 1.1, the parties appear to agree that Leaning discloses this standard. PO Resp. 34 ("Leaning's reference to 'HTTP' refers to HTTP 1.1."); *see* Pet. Reply 13 ("HTTP 1.1 explicitly contemplates multiple TCP connections."). As Petitioner points out, a memorandum regarding HTTP 1.1 states that "[c]lients that use persistent connections SHOULD limit the number of simultaneous connections that they maintain to a given server," and, more specifically, that "[a] single-user client SHOULD NOT maintain more than 2 connections with any server."

Ex. 1047, 47. We are persuaded these statements indicate HTTP 1.1 contemplates parallel connections.

We note Patent Owner additionally contends "Leaning . . . demonstrates its disinterest in addressing transmission errors of any type, and its corresponding disinterest in using multiple TCP connections to request sub-files." PO Resp. 31–33. We also note Patent Owner contends "[t]hat there is 'no expectation' of receiving sub-files in any order other than their 'original sequence' also confirms that Leaning fails to contemplate the use of multiple TCP connections." *Id.* at 33–34. As discussed above, however, Leaning discloses using multiple TCP connections. Accordingly, Patent Owner's additional contentions are unavailing.

In view of the foregoing, we find that Leaning teaches or suggests the limitation of claim 2. *See* Pet. 40.

*4. Dependent Claims 5 and 15*

Claim 5 depends on claim 1 and recites "each of the streamlets of each of the different copies is independently requestable and playable by the apparatus." Claim 15 depends indirectly from claim 13 and recites a similar limitation. We address claims 5 and 15 together.

Petitioner asserts "Leaning discloses that each of the streamlets (subfiles) of each of the different copies is independently requestable and playable by the apparatus." Pet. 41. As support, Petitioner directs us to Leaning's abstract, which states:

> Delivery of recorded audio or video material over a telecommunications link (2) from a server (1) to a terminal (3) is accomplished by dividing the material into a sequence of sub-

> files each of which is independently requested by the terminal, which thereby has control of the rate of delivery. Provision may be made for switching between alternative sub-file sets representing alternative delivery modes of data rates.

Ex. 1004, at code (57) (cited by Pet. 41).

Patent Owner counters that "Leaning's discussion of video sub-files (purported 'streamlets') reveals that none of the sub-files are 'independently . . . playable by the end user device.'" PO Resp. 37. Patent Owner asserts "Leaning focuses its discussion of delivering video on formats that involve compression," and "[t]he only two formats Leaning considers in this regard are the H.261 and MPEG formats." *Id.* (citing Ex. 1004, 16:16–31). Patent Owner further asserts "Leaning explains[] rate switching is 'more complex' in both H.261 and MPEG format because both use 'inter-frame techniques' to perform compression." *Id.* at 38 (citing Ex. 1004, 16:20–25). According to Patent Owner, rate switching in these formats specifically "would result in '***serious mistracking*** of the decoder,' as Leaning acknowledges." *Id.* at 39–40 (citing Ex. 1004, 16:30–31); *see also id.* at 41–46 (discussing mistracking).

Petitioner responds that "Leaning teaches the use of video standards that use only independently-coded frames," and "[t]here is no dispute that these sub-files would be independently playable." Pet. Reply 16 (citing Ex. 1004, 16:18–20). Petitioner additionally cross-references its prior discussion of mistracking with respect to claim 1. *Id.* (citing *id.* at 6–9[13]).

[13] Petitioner cites Section II.B.2 of its Reply, which corresponds to pages 6 through 9 of the Reply.

We agree with Petitioner. As discussed above with respect to claim 1, Leaning explains that "[a]s in the audio case, there may be two or more [video] recordings corresponding to different data rates," while acknowledging "[t]he delivery of video recordings does . . . have further implications for file partitioning if [rate] switching . . . [is] to be permitted." Ex. 1004, 16:11–12, 16:17–18. Consistent with Patent Owner's argument, Leaning says that "[i]n the case of *inter-frame* coding systems . . . serious mistracking of the decoder would occur." *Id.* at 16:24–31 (emphasis added) (cited by PO Resp. 37). As Petitioner points out, however, Leaning additionally says that "[i]n the case of [video] recordings where each frame of a picture is coded independently, it is sufficient that a sub-file contains a whole number of frames of a picture." Ex. 1004, 16:18–20 (cited by Pet. Reply 16). In Leaning, independently coded frames are called *intra-frames*. *Id.* at 16:21–23. As Petitioner asserts, "[t]here are no 'further implications' for these videos." Pet. Reply 6–7. Patent Owner does not appear to dispute Petitioner on this point. *See* PO Resp. 28 ("'Mistracking' arises for video, but not audio, because each frame of an audio file is ***independently*** decodable without any dependencies between frames."). Accordingly, Patent Owner's concern about mistracking due to inter-frame techniques does not undermine Petitioner's showing for claim 5.

Moreover, as Petitioner points out with respect to claim 1, Leaning addresses the mistracking problem by using bridging sequences. Ex. 1004, 16:24–25 (discussing "the case of inter-frame coding systems"), 16:30–31 ("[S]erious mistracking of the decoder would occur."), 17:7–10 ("[T]he [mistracking] problem can be solved by . . . the encoding of an intermediate

sequence of frames which bridges the gap between the last frame of the preceding sequence and the first frame of the new sequence."), 18:18–19:5 ("Exactly the same [bridging] process could be used for rate-switching. . . . An alternative . . . would be to construct a four-second bridging sequence.").

In view of the foregoing, we find that Leaning teaches the limitations of claims 5 and 15. *See* Pet. 41 (discussion of claim 5); *id.* at 48 (relying on discussion of claim 5 for claim 15).

*5. Dependent Claim 10*

Claim 10 depends from claim 1 and recites "the apparatus is configured to initially request low quality streamlets to enable instant playback of the content file, and subsequent upshifting according to the performance factor." For this limitation, Petitioner asserts "Leaning teaches that the apparatus is configured to initially request low quality streamlets (*e.g.*, requesting first subfile at 024k) to enable instant playback of the content file, and subsequent upshifting according to the performance factor (*e.g.*, upshifting to 032k when 'measured rate' exceeds 32 kbit/s for a set period of time)." Pet. 44 (citing Ex. 1004, 8:9–16[14]).

Patent Owner responds that "Leaning requires filling its buffer past the playout time Tp, and thus does not disclose 'instant playback.'" PO Resp. 35 (citing Ex. 2141 ¶ 115). Patent Owner also asserts "Leaning discloses four bitrate options with 24 kbit/s being the second highest option" and "acknowledges[] requesting higher quality—i.e., larger—sub-files

[14] Petitioner's citation to Leaning omits the pincite. The cited teaching appears at lines 9 through 16 of page 8.

results in 'extra delay' when starting playback." *Id.* at 36 (citing Ex. 1004, 6:14–16, 6:27–7:5, 12:31–33). According to Patent Owner, "Leaning describes initially requesting ***high*** quality files, not '***low*** quality files,' which increases delays and makes 'instant playback' impossible." *Id.*

Petitioner replies that "Leaning's playback is 'instant'" because "the playout time can be less than the duration of a sub-file, and therefore playback can begin upon reception and decoding of a single sub-file." Pet. Reply 14 (citing Ex. 1004, 12:33–34[15]; Ex. 1026 ¶¶ 49, 75, 135). As to Leaning's bitrate options, Petitioner also asserts "claim 10 does not require requesting the lowest possible bitrate," and "it is undisputed that the requested 24-kbit/s is not the highest bitrate in Leaning and allows for 'upshifting to a higher quality' as recited." *Id.* In addition, Petitioner notes that Leaning's teaching regarding "extra delay" due to larger subfiles "relates to the *length* in seconds of a sub-file." *Id.* at 15.

We agree with Petitioner. Leaning teaches that if the buffer fullness is greater than the playout time Tp, the system begins (or continues) to play the buffer contents. Ex. 1004, 10 (steps J1A, J3)) (cited by Ex. 1026 ¶ 49). Leaning also teaches that "[a] sub-file size of between 30% and 130% of the playout time[] . . . is found to be satisfactory." *Id.* at 12:33–34 (cited by Ex. 1026 ¶ 49). Based on these teachings, Dr. Houh testifies that "if the very first sub-file provides more media than the playout time, the file will play." Ex. 1026 ¶ 49. In other words, if the first subfile is 130% of the playout time, the buffer fullness will be greater than Tp, and the device will

[15] Petitioner's citation to Leaning is incorrect. The cited teaching appears at lines 33 through 34 of page 12.

begin to play. *Id.* (citing Ex. 1004, 10 (flowchart)). As Dr. Houh says, "[t]his is effectively instantaneous playback." *Id.* Further, we note Leaning's range of "satisfactory" subfile sizes addresses the concern Patent Owner raises regarding delay. *See* Ex. 1004, 12:31–34 ("[E]xcessively large sub-files are disadvantageous in requiring a larger buffer and in causing extra delay when starting play and/or when jumps or rate changes are invoked. A sub-file size of between 30% and 130% of the playout time[] . . . is found to be satisfactory.").

Turning to Patent Owner's argument that Leaning teaches initially requesting high quality files instead of low quality files, we recognize Leaning teaches "two or more versions of [a] recording" with "data rates of 8, 16, 24, and 32 kbit/s." Ex. 1004, 6:14–16 (cited by PO Resp. 36); *see also id.* at Fig. 3 (listing data rates of 8, 16, 18, 24, and 32 kbit/s) (cited by Pet. 45; PO Sur-reply 21). That Leaning lists 24 kbit/s as "the second highest option" does not adequately undermine Petitioner's showing that a file with a 24 kbit/s data rate is of low quality. *See* PO Resp. 36. We find that such file is of low quality relative to a file with a 32 kbit/s data rate, the highest option that Leaning lists.

In view of the foregoing, we find that Leaning teaches the limitation of claim 10. *See* Pet. 44–45.

*6. Remaining Claims*

Each of claims 3, 4, 6–9, 11, 12, 14, and 16–18 depends from independent claims 1 or 13. Petitioner contends that Leaning teaches the limitations recited in these dependent claims. Pet. 40–46, 48–49 (citing

Ex. 1004, 3:20–22, 3:29–30, 4:4–21,[16] 8:1–5, 8:17–26, 19:6–21, 20:1–41, claims 4–6). Petitioner relies on the declaration testimony of Dr. Houh as support. *Id.* (citing Ex. 1003 ¶¶ 88–89, 91–94, 96–97, 108, 110–113).

Patent Owner does not specifically dispute Petitioner's contentions regarding claims 3, 4, 6–9, 11, 12, 14, and 16–18. *See* PO Resp. Having reviewed Petitioner's argument and evidence (*see* Pet. 40–46, 48–49), we find that Leaning teaches the limitations of these dependent claims.

### *7. Objective Indicia of Nonobviousness*

Notwithstanding what the teachings of the prior art would have suggested to a person of ordinary skill in the art, objective evidence of nonobviousness (so called "secondary considerations") may lead to a conclusion that the challenged claims would not have been obvious. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). In its Response, Patent Owner argues there is evidence of long-felt need, failure of others, unexpected results, commercial success, copying, and industry praise, which should be considered as objective indicia of nonobviousness. PO Resp. 55–72. For us to give substantial weight to objective indicia of nonobviousness, Patent Owner must establish a nexus between the evidence and the merits of the claimed invention. *ClassCo, Inc., v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). "[T]here is no nexus unless the evidence presented is 'reasonably commensurate with the scope of the claims.'" *Id.* (quoting *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)).

[16] Petitioner's citation to Leaning omits a portion of the pincite. The cited teaching appears at lines 4 through 21 of page 4.

Patent Owner proffers evidence of secondary considerations relating to the MOVE Media Player, which is a product of MOVE Networks, Inc. ("MOVE" or "MOVE Networks"), and to Sling TV, which Patent Owner describes as "one of the first streaming services for live television channels in the United States."[17] PO Resp. 48–50. Patent Owner contends the MOVE Media Player and Sling TV embody the adaptive-bitrate ("ABR") technology of the challenged claims and are coextensive with the challenged claims. *Id.* at 51. Patent Owner also notes the ALJ in the ITC Investigation found that some of the same evidence of secondary considerations supported a finding of nonobviousness. *Id.* at 50–51 (citing, *e.g.*, Ex. 1009, 213–217; Ex. 2007, 2 (ITC Commission adopting ALJ findings)); PO Sur-reply 22–24.

Petitioner disputes that there is a nexus between the challenged claims and the asserted secondary considerations. Pet. Reply 20–24. Even if there were a nexus, Petitioner argues that Patent Owner's evidence of secondary

[17] Patent Owner asserts that in 2010 one of its predecessors acquired MOVE Networks, including the challenged patent, and "used the underlying technology and patent to launch Sling TV." PO Resp. 49–50 (citing Ex. 2020 ¶ 15; Ex. 2023; Ex. 2100 ¶ 30; Ex. 2142). We note that "Sling TV L.L.C. [is] the exclusive licensee of the '156 patent." Paper 6, 2.

considerations does not overcome Petitioner's evidence of obviousness.[18] *Id.* at 24–27.

For the reasons explained below, we determine that Patent Owner's proffered evidence does not weigh substantially in favor nonobviousness.

*a. Nexus*

A patentee is entitled to a presumption of nexus "when the patentee shows that the asserted objective evidence is tied to a specific product and that product 'embodies the claimed features, and is coextensive with them.'" *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)). But even without the presumption, the patentee "is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the 'direct result of the unique characteristics of the claimed invention.'" *Fox Factory*, 944 F.3d at 1373–74 (quoting *In re*

[18] Patent Owner asks us to "give no weight to Petitioner's reply evidence" against secondary considerations of nonobviousness because Petitioner allegedly was aware of secondary considerations evidence from the ITC and should have presented it in the Petition. PO Sur-reply 22–23 (citing *Aardevo N. Am., LLC v. Agventure B.V.*, IPR2025-00136, Paper 9 at 32 (PTAB May 1, 2025). Yet Petitioner references the ITC's findings in its Petition and provides a preliminary rebuttal. *See* Pet. 53–55. That undermines Patent Owner's argument. Also, Patent Owner's argument assumes the ITC record for secondary considerations is the same as what Patent Owner presents here. As discussed below, we are aware of differences in the two records, and otherwise we have no way of knowing how similar they might be. Under these circumstances, we decline to fault Petitioner or disregard its evidence based on the way it rebutted evidence of secondary considerations in this case.

*Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996)). Also, the nexus must be "to some aspect of the claim not already in the prior art." *In re Kao*, 639 F.3d 1057, 1069 (Fed. Cir. 2011) (emphasis added). "Ultimately, the fact finder must weigh the [objective indicia] evidence presented in the context of whether the claimed invention as a whole would have been obvious to a skilled artisan." *Lectrosonics, Inc. v. Zaxcom, Inc*, IPR2018-01129, Paper 33 at 33 (citing *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1331–32 (Fed. Cir. 2016)).

Patent Owner contends "MOVE's contemporaneous documents show that MOVE's Media-Player embodied, and was coextensive with, the Challenged Claims." PO Resp. 51 (citing Ex. 2141 ¶¶ 193–209; Ex. 2021 ("Overview of MoveNetwork's Streaming Media Technology"); Ex. 2022 ("Technical Overview of Move Networks Implementation")). Patent Owner cites Dr. Jeffay's declaration testimony and the ALJ's analysis from the ITC Investigation that allegedly show "MOVE's Media-Player and Sling TV embody MOVE's patented ABR technology, practice[] each limitation, and are coextensive with the challenged claims." *Id.* (citing Ex. 1009, 101–112; Ex. 2141 ¶¶ 193–209; Ex. 2071. Dr. Jeffay provides a claim chart analyzing the MOVE Media Player with respect to independent claim 13. *See* Ex. 2071 (claim chart); Ex. 2141 ¶¶ 191, 193 (citing claim chart). As noted above, claim 13 recites similar limitations as claim 1. Based on Dr. Jeffay's analysis and the ITC's determinations, Patent Owner argues it is entitled to a presumption of nexus. PO Resp. 51–52; PO Sur-reply 23–24. Patent Owner also contends that certain secondary considerations related to the MOVE

Media Player are directly linked to claimed features. PO Resp. 50–51, 54–55, 58–60; PO Sur-reply 23–24.

Petitioner argues Patent Owner's "nexus arguments separately fail because [Patent Owner's] evidence ties the alleged secondary considerations to unclaimed features." Pet. Reply 23. Petitioner cites Patent Owner's assertion that, "'***The key***,' one article writes, "***is in [MOVE's] plug-in*** . . . Because it puts the end-user environment in control, it can determine the best end-user experience ***intelligently . . . ensur*[*ing*]*fluidity of playback***.'" *Id.* (citing PO Resp. 53); PO Resp. 53 (quoting Ex. 2048, 1[19]) (citing Ex. 2141 ¶ 216). According to Petitioner, however, "the plug-in is key" because "it 'manages delivery, assembles and renders the stream, and ***offers DRM [Digital Rights Management], geotargeting, and extremely in-depth reporting***." Pet. Reply 23–24 (quoting Ex. 2048, 1). The fact that Patent Owner calls MOVE important undercuts the nexus argument. Indeed, the claims do not recite a plug-in as described.

Petitioner also submits that, "[t]o date, [Patent Owner] has asserted that over 180 claims from nine patents have a nexus with essentially the same alleged secondary considerations, asserting that each of the various claims is 'coextensive' with the MOVE Player and SlingTV and is entitled to a presumption of nexus." Pet. Reply 22 (citing "the Ogdon FWDs").[20]

[19] Patent Owner cites Exhibit 2048, but omits the pincite. The quoted language appears at page 1.
[20] The "Ogdon FWDs" refer to the Board's Final Written Decisions in IPR2024-00043 ("Ogdon '43IPR), IPR2024-00044, IPR2024-00045, IPR2024-00046, and IPR2024-00146 (collectively, "Ogdon IPRs") in which "Ogdon" refers to the primary prior art reference.

Petitioner argues this panel should follow the Board's determinations in other related *inter partes* reviews (Ogdon IPRs) and find no presumption of nexus. *Id.* ("The Board already rejected [Patent Owner's] claims that a direct nexus exists for over 120 claims from five patents and should do so here."); *id.* at 23 ("[Patent Owner's] admissions that the ***same*** secondary considerations are tied to ***different*** features allegedly claimed in ***different*** patents are fatal to any nexus claim.").

Patent Owner also cites the Ogdon IPRs. In particular, Patent Owner points to Dr. Houh's reply declaration testimony from the Ogdon '43IPR in relation to what Patent Owner characterizes as a "critical" feature involving "use of multiple TCP connections." PO Sur-Reply 18–19 (citing IPR2024-00043, Ex. 1028 ¶ 74). Patent Owner, however, mischaracterizes Dr. Houh's testimony from the Ogdon '43IPR. In the cited paragraph, Dr. Houh testified the "critical unclaimed feature" in that case is "using *multiple parallel* TCP connections for *requesting streamlets in parallel*." IPR2024-00043, Ex. 1028 ¶ 74 (emphases added).

Several documents that Patent Owner relies on in the instant case to show a nexus support Dr. Houh's testimony from the Ogdon IPRs. For example, Patent Owner cites a document providing an overview of MOVE's streaming media technology. PO Resp. 51 (citing Ex. 2021). That document states:

> With a *single innovation*, Quantum *streaming solves or alleviates to the extent possible, the problems of reliability, efficiency, and latency*. *The secret lies in our use of multiple TCP connections between the client and the origin web server* (or web cache—the intervention of a cache is transparent to the client.) Other streaming solutions use a single connection and receive

> their data serially. *By requesting more than one streamlet at a time ('parallel retrieval') with each request on a different connection, efficiency is raised to near maximum and latency is virtually eliminated*.

Ex. 2021, 6 (emphases added).

Patent Owner also cites the final decision from the Ogdon '43IPR. PO Sur-reply 23–24 (citing IPR2024-00043, Paper 59, at 41–59). In that decision, the Board noted "Patent Owner's declarant and named inventor[] Mr. Major testified[] the use of *multiple parallel* TCP connections was 'important' and 'was something that improves it significantly.'" Ogdon '43IPR, Paper 59, at 45 (emphasis added).

In its Sur-reply, Patent Owner argues "[c]aim 2 (via its dependency from Claim 1) expressly recites . . . those features" that the Ogdon IPRs cite as "unclaimed," namely, "multiple TCP connections." PO Sur-reply 23–24 (citing Ogdon '43IPR, Paper 59, at 41–59). Although claim 2 recites "multiple Transmission Control Protocol (TCP) connections," it does not require multiple *parallel* TCP connections. We note independent claims 1 and 13 recite "*at least one* transmission control protocol (TCP) connection." These claims also do not require multiple parallel TCP connections. Accordingly, the claims of the '156 patent are not coextensive with Patent Owner's evidence of nonobviousness because they fail to recite a critical feature of the MOVE Media Player.[21]

[21] The concurrence states "the developed record of this case does not support that multiple TCP connections or multiple, parallel/simultaneous TCP connections are critical, unclaimed features of the '156 patent." For purposes of clarity, we note that we find multiple *parallel* TCP connections (not merely multiple TCP connections) are a critical, unclaimed feature.

Still other evidence cited by both parties supports the finding that the use of *multiple parallel TCP connections* is a critical unclaimed feature that supports "continuous playback." For example, the parties cite an article that states, "Move's technology simply opens up *multiple simultaneous streams*, precluding the need for distributing servers to thousands of locations and *eliminates user perception of interruption*." Ex. 2039, 1 (emphases added); *see also* PO Resp. 58 ("The president of Level 3's Content Markets Group, one of the largest industry content delivery network providers, called MOVE's Media-Player 'a significant technology enhancement -- a true step forward -- in the delivery of HD content over the Internet' because of the continuous playback of the content." (Citing Ex. 2039.)); Pet Reply 22–23 (citing Ex. 2039).

We note Patent Owner's contention that "the ITC's finding of a presumption of nexus for the '156 Patent should apply to ***all*** of the Challenged Claims here." PO Sur-reply 24; *see also id.* at 22–24 (citing Ex. 1009, 212). As discussed above, however, independent claims 1 and 13, as well as dependent claim 2, do not recite multiple parallel TCP connections, which Patent Owner's evidence of secondary considerations, expert testimony, and arguments by Patent Owner in the Ogdon IPRs, show is a critical unclaimed feature. This is a fatal flaw in Patent Owner's evidence of coextensiveness.

Again, Patent Owner's own documents attribute the success of MOVE's streaming technology to the "single innovation" of "parallel retrieval" of streamlets across multiple TCP connections. Ex. 2021, 6; Ex. 2039. The express language of these documents—which Patent Owner

puts forth as evidence of nexus (*see* PO Resp. 51, 58)—indicates that this is a critical unclaimed feature that contributes to the MOVE Media Player's success in providing continuous playback. Although "the existence of one or two unclaimed features, standing alone, [does not] mean[] that nexus may not be presumed" (*Fox Factory*, 944 F.3d at 1374 (alterations added)), Patent Owner's assertion of coextensiveness cannot be squared with the unambiguous statements in Patent Owner's own documents. *See* Ex. 2021, 6; Ex. 2039. Therefore, by urging conformity with the Ogdon IPRs in terms of nexus, Petitioner successfully rebuts any presumption of nexus. *See WBIP*, 829 F.3d at 1329 (stating that the presumption of nexus can be rebutted when the objective evidence is tied to unclaimed features).

Patent Owner's arguments based on the findings from the ITC Investigation do not show a presumption of nexus here. The ALJ's finding was premised on the respondents' concession about an invalidating public use of the MOVE Media Player. Ex. 1009, 211–113. In contrast, the instant record includes no such concession and the ALJ's findings do not involve any evidence regarding the particular coextensiveness issue with respect to the parallel TCP connections in the MOVE Media Player. *See id.* In particular, the ALJ did not mention that Patent Owner argued the feature is critical in the Ogdon IPRs. We note the final decisions were filed after the ALJ's decision. *Compare* Ex. 1009, 1 (Sept. 9, 2022, decision), *with, e.g.*, IPR2024-00043, Paper 59 (April 14, 2025, decision).

Patent Owner cites an analysis from the ALJ's decision regarding how "Sling TV Apps" allegedly practice claim 1 of a different patent. PO Resp. 51–52 (citing Ex. 1009, 101–112). That is insufficient to establish a

presumption of nexus. Patent Owner fails to present evidence showing the ALJ considered whether the "Sling TV Apps" were coextensive with any of the claims of the '156 patent at issue in this proceeding. *See id.*

Turning to direct nexus, Patent Owner argues the asserted "objective indicia are the 'direct result of the unique characteristics of the claimed invention.'" PO Resp. 52 (quoting *Fox Factory*, 944 F.3d at 1373–74) (citing Ex. 1009, 212; Ex. 2021; Ex. 2141 ¶¶ 210–217). According to Patent Owner, "the evidence demonstrates that the success of MOVE's Media-Player is directly tied to the claimed unique combination including the 'continuous playback' feature." *Id.* Citing Dr. Jeffay's declaration testimony, Patent Owner asserts:

> [T]he secondary considerations evidence is the direct result of the unique characteristics of the claimed invention in MOVE's Media-Player that led to high-quality video delivery, fast start-up times, less buffering, continuous playback, and "a dramatically improved viewing experience for high-end and low-end connections" because it used ABR technology disclosed in the Challenged Patent.

*Id.* at 53–54 (citing Ex. 2141 ¶¶ 190, 213, 215, 265). Patent Owner primarily asserts a direct nexus between its evidence of secondary considerations using ABR technology that requires shifting bitrates to provide "continuous playback." *See id.* at 54–71.

Petitioner argues there is no direct nexus because of the unclaimed features noted above and also "ABR 'streaming was already known.'" Pet. Reply 24 (citing IPR2024-00043, Paper 59, at 51; Pet. 19–40 (relying on Leaning)). Petitioner notes the Board in the Ogdon '43IPR previously determined that "actively adjusting . . . video quality" was in the prior art. *Id.* (citing IPR2024-00043, Paper 59, at 47–48). Petitioner further contends

that "continuous playback" is likewise in the prior art. *Id.* at 22–23 (citing Ex. 2022, at 11, 23; Ex. 2077, at 1; Ex. 2036, at 2; Ex. 2039, at 1; Ex. 2046, at 1; Ex. 1026 ¶¶ 205–211[22]); *see also supra* Part III.B.2 (Petitioner's contentions based on Leaning for claims 1 and 13); Pet. 16–39.

In its Sur-reply, Patent Owner argues Petitioner "attempt[s] to dissect the MOVE player into individual features and dismiss each as known in the prior art." PO Sur-reply 25 (citing *WBIP*, 829 F.3d at 1330–31). Nevertheless, Petitioner shows that the features touted by Patent Owner as being "unique characteristics" were already in the prior art, including Leaning, which adjusts video quality based on available bandwidth and provides continuous playback within the scope of independent claims 1 and 13. *See supra* Part III.B.2 (Petitioner's contentions based on Leaning for claims 1 and 13); Pet. 16–39. This undermines Patent Owner's assertions about direct nexus. *See Kao*, 639 F.3d at 1068–69.

Moreover, the MOVE system touted continuous playback features that result at least partly, if not primarily, from multiple parallel TCP streamlet connections. The '156 patent specification supports this finding. It states that "pipelining [i.e., transmitting over a single TCP connection] has serious vulnerabilities" because "[t]ransmission delays affect all of the responses. *If the single TCP connection fails, all of the outstanding requests and responses are lost.* Pipelining causes a serial dependency between the requests." Ex. 1001, 10:34–38. By contrast,

> [*s*]*plitting the streamlet 212 into smaller pieces or portions beneficially allows for an increased efficiency potential, and also*

[22] Petitioner cites section XVII.A.5 of Dr. Houh's Reply Declaration, which corresponds to paragraphs 205 through 211.

> *eliminates problems associated with multiple full-streamlet requests sharing the bandwidth at any given moment. This is achieved by using parallel TCP/IP connections* for pieces of the streamlets 212. Consequently, *efficiency and network loss problems are overcome*, and the streamlets arrive with more useful and predictable timing.

*Id.* at 9:52–61 (emphases added). In other words, "[*s*]*everal streamlet 212 requests may be sent concurrently, with each request being sent on a mutually distinct TCP connection*. This technique is labeled 'virtual pipelining' and is *an innovation of the present invention*." *Id.* at 10:43–46 (emphases added). According to the '156 patent, "[v]irtual pipelining eliminates the vulnerabilities of traditional pipelining. A delay in or complete failure of one response does not affect the transmission of other responses because each response occupies an independent TCP connection." *Id.* at 10:49–53. Independent claims 1 and 13 only require "one . . . TCP[] connection." Claim 2, which depends from claim 1, just recites "multiple . . . TCP[] connections." None of the claims requires the disclosed "innovation" involving "parallel TCP[] connections" implemented in successful MOVE products. *See MeadWestVaco Corp. v. Rexam Beauty & Closures, Inc.*, 731 F.3d 1258, 1264 (Fed. Cir. 2013) (holding it is error to consider "secondary considerations of non-obviousness [that] involved only fragrance-specific uses, but the claims now at issue are not fragrance-specific"), 1264–65 (reasoning that "objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support" (quoting *Asyst Techs., Inc. v. Emtrak, Inc.*, 554 F.3d 1310, 1316 (Fed. Cir. 2008)); *In re Law*, 303 F.2d 951, 954 (CCPA 1961) ("Thus, assuming the affidavits are a proper showing of commercial success,

they do not show commercial success of dockboards covered by the appealed claims which are not limited to the bead of claim 13.").

As discussed above, the '156 specification indicates delays over single TCP connections cause interruptions and thereby preclude the "continuous playback" that Patent Owner attributes to the MOVE Media Player without accounting for alleviating delays via its parallel TCP connections as Patent Owner's evidence otherwise describes. Consequently, Patent Owner's objective indicia of nonobviousness are the result of either what is already in the prior art or the disclosed unclaimed "innovation," instead of the "direct result of the unique characteristics of the claimed invention." *See Fox Factory*, 944 F.3d at 1373–74.

Nevertheless, we consider Patent Owner's alleged evidence regarding objective indicia of nonobviousness with an eye toward whether the evidence is directly tied to the claimed combination as a whole. *See WBIP*, 829 F.3d at 1330–31.

*b. Long-Felt Need and Failure of Others*

Patent Owner contends "[t]he claimed invention achieved continuous playback of streaming video when others could not." PO Resp. 55–56 (citing Ex. 2141 ¶¶ 218–229; Ex. 2020 ¶¶ 6–28; Ex. 2099 ¶¶ 8–12); *see also* PO Sur-reply 26 (citing list of exhibits without analysis). Patent Owner cites evidence related to the need for "a way to watch TV shows (nearly 30 minutes or an hour in length) and movies (one to two hours in length) in higher quality," "HD video," "online HDTV," and "high quality, full-screen video content." PO Resp. 57–58, 60, 62. According to Patent Owner,

"[c]ompeting technologies attempted but failed to meet this same need for the combination of claim elements to achieve continuous playback using streamlets." *Id.* at 59 (citing Ex. 2020 ¶¶ 7–10; Ex. 2141 ¶¶ 225–229; Ex. 2034; Ex. 2036; Ex. 2041; Ex. 2103; Ex. 2033; Ex. 2084; Ex. 2053)). Patent Owner cites in particular evidence of then-existing video streaming failures due to "buffering, hesitancy, delays, stalling, freezing, and unresponsiveness." PO Resp. 57 (citing Ex. 2141 ¶¶ 223–224; Ex. 2020 ¶ 11; Ex. 2021; Ex. 2034). Patent Owner also argues that entities such as ABC.com and Microsoft eschewed inferior technologies and adopted MOVE's ABR streaming technology. *Id.* at 60 (citing Ex. 2036, at 2; Ex. 2042, Ex. 2043, Ex. 2044; Ex. 2046; 2141 ¶¶ 227–228, 234–235, 265; Ex. 2125; Ex. 2062).

Petitioner relies on the same arguments disputing nexus discussed above. *See* Pet. Reply 24.

In sum, Patent Owner posits a long-felt need for continuous playback of streaming video (PO Resp. 55–62; PO Sur-reply 26), and cites various articles in support of that theory, as discussed above. Yet Patent Owner also cites evidence that at least one competitor's product, Adobe Flash, was already providing video over the internet, albeit using different technology and for shorter average session times. *See, e.g.*, Ex. 2141 ¶¶ 220, 222, 246; Ex. 2034, 1; Ex. 2038, 1; Ex. 2044; PO Resp. 58 (citing Ex. 2034, 1 (indicating MOVE delivered "22 minutes a session, compared with 3 or 4 minutes" previously for Adobe Systems).

This tends to undermine that Patent Owner's posited need was unmet, or that others had failed. At the same time, Patent Owner's evidence tends

to show that MOVE Networks' technology was regarded as superior to Adobe's insofar as it overcame certain problems (e.g., excessive buffering) that users experienced with Adobe's technology. *See, e.g.*, Ex. 2044. This allowed for longer average streaming sessions. *See, e.g.*, Ex. 2034; Ex. 2035, 1; Ex. 2036, 2; Ex. 2048).

Thus, Patent Owner shows that the MOVE product was *better* at delivering continuous streaming video, not that others had failed at delivering continuous video. This cuts against the notion that there was a long-felt but unmet need. Moreover, as found above, the prior art already taught continuous streaming video (*see supra* Part III.B.2), which undermines any nexus between the alleged long-felt need and the claimed invention. *See Kao*, 639 F.3d at 1068–69. Lastly, the evidence is not commensurate in scope with the challenged claims of the '156 patent because the claims do not specify that video must be "continuous for 22 minutes a session, compared with 3 or 4 minutes" previously for Adobe Systems. *See* PO Resp. 61–62 (citing Ex. 2034, 1). Accordingly, we accord Patent Owner's evidence little to no weight.

*c. Unexpected Results*

Patent Owner argues that the MOVE Media Player "achieved what many thought impossible and contributed to a major shift in the industry away from cable/satellite packages to internet streaming (*i.e.*, cord-cutting)." PO Resp. 62 (citing Ex. 2032; Ex. 2037; Ex. 2141 ¶¶ 230–237); *see also* PO Sur-reply 26–27 (similar argument). Patent Owner puts forth certain articles expressing surprise at how well the MOVE Media Player performed at the

time of its introduction. PO Resp. 62–63 (citing Ex. 2032; Ex. 2037; Ex. 2141 ¶¶ 230–237). Patent Owner puts forth some evidence that the MOVE Media Player was regarded as being superior to other streaming technologies at the time. *Id.* at 63 (citing Ex. 2049; Ex. 2141 ¶¶ 230, 234–237). Patent Owner also asserts there is a "direct nexus" between the evidence of unexpected results and "the continuous playback requirement of the Challenged Claims." *Id.* (citing Ex. 2141 ¶ 230).

"Unexpected results that are probative of nonobviousness are those that are 'different in kind and not merely in degree from the results of the prior art.'" *Galderma Lab'ys, L.P. v. Tolmar, Inc.*, 737 F.3d 731, 739 (Fed. Cir. 2013) (quoting *Iron Grip Barbell Co. v. USA Sports, Inc.,* 392 F.3d 1317, 1322 (Fed. Cir. 2004)). Although Patent Owner puts forth some evidence of users' surprise at the higher quality of the MOVE Media Player's streaming video, the record does not establish that MOVE's streaming video results were of a different and unexpected kind consistent with the holding of *Iron Grip*. The results were still continuous streaming video, as had already existed, albeit at a better quality or degree according to Patent Owner's telling.

As indicated above, Patent Owner cites Dr. Jeffay's declaration testimony (Ex. 2141 ¶ 230), which in turn references additional allusions to continuous playback. *See id.* ¶¶ 232, 234 (citing Ex. 2032; Ex. 2048; Ex. 2054). Of these, only Exhibit 2048 arguably relates to continuous playback via its mention of "fluidity of playback." *See* Ex. 2048, 1. But Exhibit 2048 states "the key is in the plugin, which manages delivery, assembles and renders the stream, and offers *DRM*, *geo-targeting*, and

*extremely in-depth reporting*." *Id.* (emphases added). And "[b]ecause it puts the end-user environment in control, it can determine the best end-user experience intelligently." *Id.* "The basic technology involved is what they call *simulcoding* which takes a feed and simultaneously encodes it into smaller pieces called 'streamlets' using multiple profiles to offer playback at multiple bitrates." *Id.* "By distributing these streamlets based on end-user demand Move can distribute them over *traditional servers*. Doing so bypasses the high end media servers used for traditional Flash and Windows Media encoding which in turn lowers streaming costs." *Id.* (emphasis added).

These unclaimed features tend to undermine Patent Owner's assertion of a direct nexus to the "continuous playback" limitation. *See* Pet. Reply 23–24 (asserting the plug-in feature, which "offers DRM [Digital Rights Management], geo-targeting, and extremely in-depth reporting," is critical and unclaimed (emphasis omitted)). Additionally, continuous streaming of video with ABR control and streamlets was known in the prior art, which further attenuates any such nexus. Based on the record before us, we accord Patent Owner's evidence of unexpected results little to no weight. *See* Pet. Reply 20–24; *supra* Parts III.B.2 (finding Petitioner's contentions based on Leaning for claims 1 and 13 supported); Pet. 16–39.

*d. Commercial Success*

Patent Owner argues that, "[w]ithin months of its 2006 commercial launch, MOVE's Media-Player was being used to deliver roughly as much data as YouTube and more data than the web sites of CNN, NBC, and CBS,

none of which used the MOVE Media-Player." PO Resp. 64 (citing Ex. 2034; Ex. 2141 ¶¶ 214, 224, 235, 241, 272). Patent Owner also contends that a number of companies adopted MOVE's technology after it was made commercially available. *Id.* (citing Ex. 2141 ¶¶ 242, 244, 251, 255, 258, 260–261). Patent Owner also cites certain investments made in MOVE Networks as being indicative of commercial success. PO Resp. 65–66. Patent Owner additionally cites evidence of various licenses for its adaptive bitrate patents as an indicator of nonobviousness. *Id.* at 66–67 (citing Ex. 2063, 23 n.100; Ex. 2093; Ex. 2094; Ex. 2095). In particular, Patent Owner states that Microsoft solicited (but was denied) a license for the technology covered by an application having the same disclosure as the challenged patent. *Id.* (citing Ex. 2125 ¶ 4).

Petitioner relies on the same arguments disputing nexus discussed above. *See* Pet. Reply 22–27; *supra* § III.B.2 (finding Petitioner's contentions based on Leaning for claims 1 and 13 supported); Pet. 16–39. Petitioner also submits that any success attributed to MOVE Networks as an entity, or to its technology or ABR technology in general, "is not sufficiently tied to the claimed invention." Pet. Reply 25.

The evidence of record shows that MOVE Networks as an entity experienced some commercial success, at least initially. By May 2007, MOVE Networks was delivering as much streaming data as YouTube and more streaming data than the CNN, NBC, and CBS websites. *See* Ex. 2034, 1. MOVE Networks also collaborated with industry leaders such as ABC, Microsoft, Fox, Level 3, and ESPN. *See, e.g.*, Exs. 2034, 2039, 2040, 2044; Ex. 2070, 4–5. This evidence tends to support Dr. Jeffay's declaration

testimony that "the success of Move Networks' technology was attributable to its unique design." Ex. 2141 ¶ 244.

Nevertheless, much of Patent Owner's evidence of commercial success is tied to MOVE Networks as an entity, or to MOVE's "technology" or "ABR technology" generally. *See, e.g.*, Ex. 2141 ¶¶ 239–241, 244, 247, 252–253, 257–258, 261–262. Indeed, Dr. Jeffay attributes at least some of the success of MOVE Networks' technology to its use of standard web servers, which saves streaming costs as noted above in the previous sub-section, rather than media servers, which is outside the scope of the challenged claims. *See id.* ¶¶ 241, 245, 248; Ex. 2048.

Patent Owner cites longer average streaming times as "directly demonstrat[ing] the claimed 'continuous playback' as the reason for the success of MOVE's Media-Player." PO Resp. 64 (citing Exs. 2034, 2035). Yet, as discussed above, continuous playback was already known in the prior art. *See supra* Part III.B.2 (finding Petitioner's contentions based on Leaning for claims 1 and 13 supported); Pet. 16–39; Pet. Reply 22–27. It also appears, as discussed above, that much of the long continuous running time is partly due to unclaimed parallel TCP connections for streamlets (and the challenged claims neither require nor necessarily enable the long continuous playback relied upon for commercial success without multiple TCP parallel streamlet connections). *See* Ex. 1001, 9:52–61, 10:34–38, 10:43–46, 10:49–53; Ex. 2021, 6; Ex. 2039, 1. Therefore, we discount Patent Owner's evidence of commercial success because there is no nexus to the merits of the claimed invention "[w]here the offered secondary

consideration actually results from something other than what is both claimed and *novel* in the claim." *Kao*, 639 F.3d at 1068.

Patent Owner's evidence of licenses for its adaptive bitrate patents is also unavailing. *See* PO Resp. 66 (citing Ex. 2141 ¶ 260; Ex. 2063, 23 n.100; Exs. 2093–2095; Ex. 2125 ¶ 4). This licensing evidence is entitled to little weight as an indicator of commercial success where, as here, Patent Owner has not demonstrated a clear nexus between the invention of the '156 patent and these licenses. *See Iron Grip*, 392 F.3d at 1324 (holding that "the existence of licenses is of little significance" in the absence of nexus evidence). The Microsoft license solicitation is also of little relevance, because, according to Patent Owner, Microsoft did not obtain a license and Patent Owner fails to show a nexus to the instant patent. *See* PO Resp. 60, 66 (citing Ex. 2125 ¶ 4 (Microsoft declarant stating that Microsoft "offered to license MOVE Networks' Patent Application No. 11/673,483 for $10,000")).[23]

The record does show that the involved parties settled the ITC Investigation, which encompassed the '156 patent. *See* Exs. 2093–2095. However, Patent Owner does not explain the circumstances surrounding the taking of any license or terms of settlement. *See* PO Resp. 50–51, 66–67 (citing Ex. 2141 ¶ 262 (citing Exs. 2093–2095)). Patent Owner states "[t]he Respondents in that ITC Investigation, Peloton, lululemon, and MIRROR,

[23] This application number corresponds to U.S. Patent No. 7,818,444 B2. That patent and the patents involved in the three concurrent proceedings, IPR2024-00917, IPR2024-00918, and IPR2024-00919, all claim continuation benefit to Application No. 11,116,783 and to Provisional Application No. 60/566,831.

each took a license to the ABR Patents with Peloton paying $75 Million for a license including the patent challenged here." *Id.* at 50–51 (citing Ex. 2141 ¶ 247). Patent Owner similarly states in its Sur-reply that Peloton obtained a "$75 Million license . . . after the ITC Investigation (EX2141, ¶[247])." PO Sur-reply 27 (citing *Ancora Techs., Inc. v. Roku, Inc.*, 140 F.4th 1351, 1363 (Fed. Cir. 2025)). Patent Owner further refers to "investments[] and demand (*e.g.*, EXs. 2024, 2032–2035, 2038–2040, 2045–2058, 2068, 2070, 2075, 2086–2087, 2092–2095, 2090, 2121, 2143.)." *Id.*

Cited paragraph 247 of Dr. Jeffay's declaration does not mention a license. However, Dr. Jeffay testifies at paragraph 261 of his declaration that "DISH has also licensed the ABR technology in the Challenged Patents to Peloton for $75 Million, to lululemon, and to iFit." Ex. 2141 ¶ 261 (citing Exs. 2093–2095). Dr. Jeffay provides a link to an article for the IPLaw 360 website, but the article is not of record. *See id.* Exhibit 2093 is a copy of a motion to terminate the ITC Investigation pursuant to a "settlement agreement" with Peloton and shows a service date of May 3, 2023 (wherein the ITC Investigation involves the '156 patent). *See* Ex. 1009, 1 (investigating "with respect to U.S. Patent No. 9,407,564; U.S. Patent No. 10,469,554; U.S. Patent No. 10,469,555; and U.S. Patent No. 10,757,156.").

There is no license or settlement agreement with respect to the '156 patent in the record. Patent Owner's lengthy string citation includes articles about MOVE's quality, funding for Move Networks, transition to Internet-TV, layoffs by Move Networks, potential licensing, and other information, but none of it provides a nexus to claim 1 or claim 13. *See* PO Sur-reply 27

(citing "*e.g.*, EXs. 2024, 2032–2035, 2038–2040, 2045–2058, 2068, 2070, 2075, 2086–2087, 2092–2095, 2090, 2121, 2143").[24]

In *Ancora*, the court stated "clear evidence that substantial license fees were paid for licenses to a specific patent late in a litigation should be given the significance that their magnitude deserves." *Ancora*, 140 F.4th at 1363. Patent Owner here does not apprise us of such clear evidence because there is no license of record to show what Peloton obtained for the large sum of money. *Cf. id.* ("And while 'it is often cheaper to take licenses than to defend infringement suits,' *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004) (quotations omitted), that is certainly not the case here.").

On the one hand, Patent Owner does not provide sufficient, if any, evidence showing that the respondents in the ITC litigation were aware of Leaning. *See Ancora*, 140 F.4th at 1363 ("The license payments also far exceeded the cost of litigation, *and the defendants were fully aware of the relevant prior art*." (Emphasis added.)). On the other hand, the evidence suggests Peloton paid a large sum of money, presumably to sell products within the scope of the '156 patent (although that is unknown and unargued).

*Ancora* makes clear that a patentee must "provide adequate evidence that the licenses had a nexus to the patents at issue." 140 F.4th at 1363 ("Roku properly notes that the *Iron Grip* panel declined to credit low-value licenses not because of their value, but because of the failure of the patentee

[24] Contrary to the string citation, there is no Exhibit 2143 or Exhibit 2056 in the record. Cited Exhibit 2090 is a 149-page U.S. Securities and Exchange Commission Form 10-K filing by EchoStar Corporation with no pincite directing the Board to relevant evidence.

to provide adequate evidence that the licenses had a nexus to the patents at issue."). The license is not in evidence, so we do not know the extent to which it implicates the '156 patent. Under these circumstances, Patent Owner does not show a clear nexus between the license and the challenged patent.

Here, there is more than a "theoretical possibility" that Peloton obtained a license for "other technology described in the [specific] patent," because evidence suggests the MOVE products were successful due to, *inter alia*, the critical unclaimed feature of providing streamlets over parallel TCP connections. *See Ancora*, 140 F.4th at 1362 (characterizing *Institut Pasteur & Universite Pierre Et Marie Curie v. Focarino*, 738 F.3d 1337, 1347 (Fed. Cir. 2013), as "holding that requiring a showing that 'third parties specifically licensed the patent family to gain access to the subject matter claimed in [a specific] patent, rather than other technology described in the [specific] patent but not claimed or claimed in related patents' is more than is required for the nexus analysis, because 'that theoretical possibility does not undermine the strong probative value of the licensing of the [specific] patent'.").

On balance, we are mindful of our reviewing court's holding that "[i]t is not necessary . . . that the patented invention be solely responsible for the commercial success, in order for this factor to be given weight appropriate to the evidence, along with other pertinent factors." *Cont'l Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1273 (Fed. Cir. 1991). Based on the foregoing discussion, we accord some weight, but not significant weight, to Patent Owner's evidence of commercial success.

*e. Copying*

Patent Owner contends that, after disclosing its technology to Apple under non-disclosure agreements, Apple developed the HTTP Live Streaming (HLS) Standard, which was similar to MOVE's technology. PO Resp. 67 (citing Exs. 2065, 2066; Ex. 2073, 38:20–40:7; Ex. 2100 ¶¶ 20–27; Ex. 2102, 113:5–9, 138:13–18, 155:1–15, 156:6–15; Ex. 2046); *see also id.* at 61 (asserting the ITC ALJ "conclud[ed] that use of HLS standard for ABR streaming infringes two of [Patent Owner's] ABR Patents—the '564 and '156 Patents" (citing Ex. 1009, 80–99, 114–126)). Patent Owner also contends that Microsoft implemented its own version of "HTTP-based ABR [adaptive bitrate] streaming technology." *Id.* at 67–68 (citing Exs. 2042, 2043, 2067).

Petitioner relies on the same arguments disputing nexus discussed above. *See* Pet. Reply 22–27. Petitioner also notes the "ITC found that [Patent Owner] failed to establish copying" such that Patent Owner fails to show copying by Apple and Microsoft. *Id.* (citing Ex. 1009, 216).

Patent Owner's alleged evidence of copying related to Apple includes non-disclosure agreements (*see* Exs. 2065, 2066) and David Ericson's declaration testimony that "HLS is, as a proposed standard, very similar to the technology MOVE had already developed and implemented, namely in that it also attempts to provide users with a continuous stream of the highest-supportable quality content without buffering or latency." Ex. 2100 ¶ 26 (citing Ex. 2073; Ex. 2102, 97:1–4, 118:18–21, 157:4–5); *see also* PO Resp. 63 (citing same). As such, Patent Owner presents some evidence that Apple had access to MOVE's technology and that Apple's proposed HLS

standard included features with links to the adaptive bitrate and "continuous playback" limitations of claims 1 and 13. Still, as discussed above, these aspects of the technology were known in the art (*see supra* Part III.B.2 (Petitioner's contentions based on Leaning for claims 1 and 13); Pet. 16–39; Ex. 1026), which weakens the import of any potential copying by Apple. *See Kao*, 639 F.3d at 1068. Patent Owner also does not show "replication of a specific product" by Apple, as is required to show copying. *See Iron Grip*, 392 F.3d at 1325. And even though the ITC may have found the HLS Standard to be "very similar to what MOVE had developed and was using as a proposed standard" (PO Resp. 67), the ITC did not find copying as Patent Owner argues. Pet. Reply 25 (citing Ex. 1009, 216).

Therefore, we accord Patent Owner's evidence of copying by Apple little to no weight.

Regarding Microsoft, Patent Owner adduces evidence of collaboration between MOVE Networks and Microsoft. *See* PO Resp. 65–68 (citing Exs. 2042, 2060). Patent Owner's allegations of copying hinge on Microsoft's "Smooth Streaming" extension implementing adaptive bitrate technology. *Id.* at 67–68 (citing Exs. 2042, 2043, 2067; Ex. 2141 ¶ 268). Yet Patent Owner does not establish any particular link between "Smooth Streaming" and the claims of the '156 patent other than the use of adaptive bitrate video streaming (*see* Ex. 2067; Ex. 2141 ¶ 268), which was in the prior art. *See supra* Part III.B.2; Pet. 16–39. Patent Owner also fails to show "replication of a specific product" by Microsoft. *See Iron Grip*, 392 F.3d at 1325.

For these reasons, we accord Patent Owner's evidence of copying by Microsoft little to no weight.

*f. Industry Praise*

Patent Owner cites certain articles that use superlative language to describe the MOVE Media Player's performance due to its ability to stream video continuously at an adaptive rate on standard web servers. PO Resp. 68–69 (citing Exs. 2033, 2034, 2036, 2048, 2050, 2051). As discussed above, however, the concept of adaptive rate streaming was already in the prior art. *See supra* Parts III.B.2, III.D.1–5; Pet. 16–39. Also as discussed above, the use of standard web servers is an unclaimed feature. *See supra* Parts III.D.3–4. As such, Patent Owner's evidence tying these features to various laudatory comments lacks a nexus to the claimed invention.

Patent Owner also cites a 2020 Emmy award recognizing SlingTV as evidence of industry praise. PO Resp. 69–70 (citing Ex. 2020 ¶ 21; Ex. 2023; Ex. 2100 ¶ 21; Ex. 2127 ¶ 21; Ex. 2141 ¶ 280). Yet SlingTV's own press release states this award relates to SlingTV's "over-the-top" television service that was "launched February 9, 2015" (Ex. 2023, 1), many years after the priority date of the '156 patent (*see* Ex. 1001, codes (60), (63)). As indicated above, Patent Owner does not show a nexus between claims 1 or 13 of the '156 patent and any SlingTV product. Patent Owner's statement that SlingTV "implemented the patented ABR technology after the MOVE [Networks] acquisition" is insufficient to establish nexus. *See* PO Resp. 69.

Patent Owner also puts forth evidence of other awards: AlwaysOn's OnHollywood 100 (Exs. 2026, 2027), AlwaysOn's OnMedia 100 (Ex. 2028), Red Herring Global 100[25] (Ex. 2029), and TechCrunchies (Ex. 2030). *See* PO Resp. 69 (citing Ex. 2020 ¶ 34; Ex. 2141 ¶¶ 278–280). None of these awards relates specifically to the technology claimed in the '156 patent. Indeed, all these awards appear to have been conferred on MOVE Networks as a business entity. *See, e.g.*, Ex. 2026 ("The OnHollywood 100 was selected from more than 1000 companies.").

Patent Owner also cites certain laudatory statements made by "[c]ontent distributors and competitors," i.e., Gregory Smith (Ex. 2041), Level 3 (Ex. 2054), and Level 3 (Ex. 2130). PO Resp. 70 (citing Exs. 2041, 2054, 2130). It is not clear how any of these citations shows a nexus to praise. Patent Owner states that "Level 3 in a Letter and Term Sheet to MOVE's then-CEO John Edwards praised the difference between 'traditional streaming' and using Flash, due to the ability of MOVE's Media-Player to 'automatically upshift[] and downshift[] to provide ***continuous video playback*** at the highest-quality profile possible.'" *Id.* (citing Ex. 2130; Ex. 2041). The letter from Level 3 (Ex. 2130) includes a term sheet, but it does not have the quoted language. Nor does the redacted letter from Gregory Smith (Ex. 2041). In any event, Leaning teaches the touted shifting and ABR was otherwise in the prior art. *See supra* Part III.B.2.

[25] Patent Owner also cites a "Red Herring 100" award (PO Resp. 69), but Patent Owner does not direct us to evidence of such an award in the record aside from Dr. Jeffay's declaration testimony. *See id.* (citing Ex. 2141 ¶ 279).

Finally, Patent Owner cites the statements of certain "users" of MOVE's technology. PO Resp. 71 (citing Ex. 2036; Ex. 2141 ¶¶ 273, 275). The evidence backing these statements appears to be certain blog posts from the internet. *See, e.g.*, Exs. 2033, 2036, 2080.[26] The blog posts, along with Dr. Jeffay's supporting testimony (*see* Ex. 2141 ¶¶ 272, 273, 275), do not establish why the cited "users" are representative of the views of the industry as a whole. In the absence of such information, we find these statements to be of little evidentiary value.

Having considered Patent Owner's alleged evidence of industry praise, and having considered the deficiencies discussed above in Patent Owner's showing of nexus, we accord this evidence little or no weight.

*g. BT's Alleged Failure to Commercialize Leaning's Teachings*

Patent Owner argues "the most direct and probative indicium of non-obviousness may be BT's [British Telecom's[27]] failure to commercialize, license, or further develop the video teachings of Leaning, despite having had every incentive to do so in the early 2000s." PO Resp. 71–72 (citing Ex. 1004, 1; Ex. 2135). Patent Owner cites declaration testimony from Peter Ratcliffe, BT's Legal Director for intellectual property rights, asserting that he could not locate any BT business records showing that a video implementation of Leaning's teachings was ever licensed or

[26] These are updated citations to exhibits referenced in Dr. Jeffay's declaration to reflect the correct Exhibit numbers.
[27] "British Telecommunications Public Limited Company" is listed as the "Applicant" of the Leaning patent application. Ex. 1004, code (71).

commercialized. *Id.* (citing Ex. 2126 ¶ 8).[28] Mr. Ratcliffe also allegedly "confirmed with the Leaning inventors' direct manager that the video teachings were never commercialized." *Id.* (emphasis omitted) (citing Ex. 2126 ¶ 8).[29] Patent Owner argues "BT had every incentive to commercialize and develop an ABR [adaptive bitrate] streaming solution," so "BT's failure to commercialize the video aspects of Leaning demonstrates that Leaning falls short of rendering the challenged claims obvious." *Id.*

In its Reply, Petitioner argues that any alleged failure to commercialize Leaning's teachings is irrelevant as a secondary consideration of nonobviousness. Pet. Reply 26–27 (citing *Samsung Electronics Co. v. Lynk Labs.*, IPR2021-01299, Paper 32 at 19 (PTAB Mar. 7, 2023)). Petitioner notes "[Mr. Ratcliffe] testified that Leaning was licensed as part of portfolio licenses, and asserted against a third party." *Id.* at 27 (citing Ex. 1035, 73:16–74:15, 126:11–127:23, 139:11–140:3, 158:19–159:8 (Ratcliffe deposition)). Petitioner questions the thoroughness of Mr. Ratcliffe's search efforts because "[Mr. Ratcliffe] testified he was asked to only search for commercialization of a 'Voyager 2000' product." *Id.* (citing Ex. 1035, 12:8–19, 17:24–25). And Petitioner asserts that another commercialized BT product called FastNets included features of Leaning

[28] Patent Owner cites paragraph 8 of Mr. Ratcliffe's declaration, but the cited material appears at paragraphs 10 and 11.
[29] Patent Owner cites paragraph 8 of Mr. Ratcliffe's declaration, but the cited material appears at paragraphs 10 and 11.

such as video rate-switching. *Id.* (citing Ex. 1026 ¶¶ 216–219; Exs. 1036, 1037).[30]

In its Sur-reply, Patent Owner disputes that FastNets employed Leaning's teachings given that FastNets was a push-based architecture rather than a pull-based architecture like Leaning. PO Sur-reply 28–29 (citing Ex. 1041, Fig. 7; Ex. 1036, 2).[31]

Patent Owner fails to offer a legal basis for the notion that a non-party's failure to commercialize the teachings in an asserted prior art reference somehow may be treated as an indicium of nonobviousness. And even if such a theory were viable, the record does not support it. Mr. Ratcliffe acknowledged at least some commercialization of Leaning by BT. Ex. 2126 ¶ 10 (testifying that "the audio teachings of the '343 Application were commercialized as part of internal trials" and "the '343 Application was never separately licensed *outside of certain entire 'patent portfolio' licenses* that BT has entered into with third parties in the normal course of BT's own patent commercialization efforts" (emphasis added)). Further, Patent Owner fails to adduce evidence supporting the premise of its argument, i.e., that BT had "every incentive" to "commercialize, license, or further develop the video teachings of Leaning." *See* PO Resp. 71–72. In addition, the scope of the evidence presented here—Mr. Ratcliffe's deposition testimony based on a limited search guided

[30] These Exhibits are apparently the same as Exhibits 1 and 2 presented at Mr. Ratcliffe's deposition. *See* Ex. 1035, 5.
[31] Exhibit 1041 is the same article as Exhibit 6 presented at Mr. Ratcliffe's deposition. *See* Ex. 1035, 5, 142.

by Patent Owner's attorneys (*see* Ex. 1035, 12:8–19)—is too narrow to reliably draw conclusions about BT's actions and intentions years ago.

For these reasons, we accord Patent Owner's evidence related to BT no weight as a secondary consideration of nonobviousness.

*8. Summary*

In view of the foregoing, we accord Patent Owner's evidence of commercial success some weight, but not significant weight. We accord Patent Owner's evidence of long-felt need and failure of others, unexpected results, copying, and industry praise little to no weight. We accord Patent Owner's evidence related to BT no weight. In general, Patent Owner's failure to establish an appreciable nexus between the merits of the claimed invention and the alleged secondary considerations undermines the probative value of Patent Owner's evidence as indicia of nonobviousness.

After weighing all the evidence of obviousness and nonobviousness, we determine, on balance, Petitioner has demonstrated by a preponderance of the evidence that claims 1–18 would have been obvious over Leaning.

*C. Asserted Obviousness Over Leaning and Ala-Honkola*

Petitioner asserts that claims 1–18 of the '156 patent would have been obvious over Leaning and Ala-Honkola. Pet. 50–52. Patent Owner disputes certain aspects of Petitioner's analysis. PO Resp. 46–48. For the reasons explained below, we determine Petitioner has demonstrated by a preponderance of the evidence that claims 1–18 would have been obvious over Leaning and Ala-Honkola.

We provided an overview of Leaning above. *See supra* Part III.B.1. Before addressing the parties' arguments, we additionally provide an overview of Ala-Honkola.

*1. Overview of Ala-Honkola*

Ala-Honkola "relates to media streams transmitted in a network, such as the Internet." Ex. 1017 ¶ 1. A media stream refers to a continuous transmission of data. *Id.* ¶ 9. Ala-Honkola explains that "most of the content of the Internet is in WWW servers, which use the HTTP protocol for transmitting desired contents to users." *Id.* ¶ 4. A connection between a server and a user can have varying transmission speed rates. *Id.* ¶ 7.

According to Ala-Honkola, "[a]n important aspect of [its] invention is to change the source of an adaptive media stream when an available connection speed rate changes." Ex. 1017 ¶ 10. Each source includes the same information, such as video, but corresponds to a different connection speed rate. *Id.*

In operation, the source that corresponds to the available speed rate at the beginning of a transmission is selected as the source of the media stream. Ex. 1017 ¶ 11. If the available transmission speed rate changes, either to a higher speed rate or a lower speed rate, a command for changing the source of the media stream is sent from the user's terminal to the service provider's server. *Id.* Commands are sent using an HTTP protocol. *Id.* When a source is changed, a new HTTP transmission for the new source is started for a new stream including the information of the new source. *Id.* ¶ 10. If

the available transmission speed rate changes again, a new command for changing the source is sent. *Id.* ¶ 11.

Another feature of Ala-Honkola's invention includes monitoring buffer fullness. Ex. 1017 ¶ 14. Depending on whether the buffer is becoming empty or full, the system continues to play the current media stream or starts playing another media stream. *Id.*

We now turn to the claims, starting with independent claims 1 and 13.

*2. Independent Claims 1 and 13*

As discussed above, we determine Petitioner has shown by a preponderance of the evidence that claims 1 and 13 would have been obvious over Leaning alone. Under a separate challenge based on Leaning and Ala-Honkola, Petitioner presents alternative theories for limitations 1A2 and 1B1.

*a. Limitation 1A2: "at least one transmission control protocol (TCP)"*

Limitation 1A2 recites "the media player is configured to stream the video from the video server via at least one transmission control protocol (TCP) connection over the network." Petitioner contends that "to the extent Patent Owner argues that Leaning alone does not teach at least one TCP connection[,] Ala-Honkola teaches this limitation." Pet. 50. Petitioner asserts "Ala-Honkola teaches client-controlled adaptive rate streaming wherein the client makes repeated requests to switch to higher or lower bitrate quality copies of the video based on changing bandwidth." *Id.* (citing Ex. 1017 ¶¶ 4, 7–12, 14–15, 30–45, Figs. 1, 2). Petitioner also asserts "Ala-

Honkola teaches that such requests are HTTP GET requests that 'can be sent via one TCP connection' but 'it should be noted that several TCP connections may be needed or used for transmitting consecutive streams.'" *Id.* at 50–51 (citing Ex. 1003 ¶ 117; Ex. 1017 ¶ 39). According to Petitioner,

> A POSITA would have been motivated to modify Leaning such that terminals 3 made their HTTP requests for subfiles from the server 1 via one (or more than one) TCP connection, as taught by Ala-Honkola, because TCP connections, as the standard Internet protocol for establishing connections between a client and server, would have been a reliable means for allowing terminal 3 to request subfiles from the server 1.

*Id.* at 51 (citing Ex. 1003 ¶ 118). Petitioner adds that "[a] POSITA would have had a reasonable expectation of success with such a modification because TCP is and was a reliable protocol for delivery of requested data from a server to a client." *Id.* (citing Ex. 1003 ¶ 118).

Patent Owner does not specifically dispute Petitioner's contentions in this regard. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Petitioner's proposed combination of Leaning and Ala-Honkola teaches limitation 1A2. *See* Pet. 50–51. We also are persuaded by Petitioner's proffered reasoning for combining Leaning and Ala-Honkola. *Kahn*, 441 F.3d at 988.

*b. Limitation 1B1: "hypertext transport protocol (HTTP) GET requests"*

Limitation 1B1 recites "requesting sequential streamlets of one of the copies from the video server according to the playback times of the streamlets by transmitting hypertext transport protocol (HTTP) GET requests that identify the selected streamlets stored by the video server."

Petitioner contends that "to the extent it is argued that HTTP GET requests are not taught by Leaning, Ala-Honkola also teaches client requests to a server for files in the context of streaming should be HTTP GET requests." Pet. 51 (citing Ex. 1017 ¶¶ 14, 22, 33–34, 38). According to Petitioner, "[a] POSITA would have been motivated to use HTTP GET requests, as taught by Ala-Honkola, for requesting specific streamlets (subfiles) in Leaning because HTTP GET requests were a well-known and reliable means of requesting and obtaining files from a server and thus ensure Leaning's client terminal properly receives each quality subfile for continuous playing." *Id.* at 52. Petitioner adds that "GET requests are one of a finite number of possible methods available in the HTTP protocol, and thus one of a finite number of identified predictable solutions for requesting files from a server with a reasonable expectation of success." *Id.* Petitioner relies on the declaration testimony of Dr. Houh. *Id.* (citing Ex. 1003 ¶¶ 119–121).

Patent Owner does not specifically dispute Petitioner's contentions in this regard. *See* PO Resp. Based on Petitioner's argument and evidence, we find that Petitioner's proposed combination of Leaning and Ala-Honkola teaches limitation 1B1. *See* Pet. 51–52. We also find that Petitioner's proffered reasoning for combining Leaning and Ala-Honkola supports a legal conclusion of obviousness.

### *3. Dependent Claim 2*

Claim 2 depends from claim 1 and recites "the apparatus is configured to establish multiple Transmission Control Protocol (TCP) connections with a content server, and request streamlets of varying bitrates." As discussed

above, we determine that Petitioner has shown by a preponderance of the evidence that claim 2 would have been obvious over Leaning.

Under an alternative theory, Petitioner contends that "[t]o the extent it is argued that Leaning does not teach multiple TCP connections, Ala-Honkola also teaches this limitation." Pet. 52. Petitioner cross-references its discussion of limitation 1A2. Pet. 52. In that discussion, Petitioner asserts "Ala-Honkola teaches that [requests to switch to higher or lower bitrate quality copies of the video] are HTTP GET requests that 'can be sent via one TCP connection' but 'it should be noted that *several TCP connections* may be needed or used for transmitting consecutive streams.'" *Id.* at 50–51 (emphasis added) (citing Ex. 1003 ¶ 117; Ex. 1017 ¶ 39).

Patent Owner counters that "Petitioner's reliance on the combination of Leaning and Ala-Honkola as allegedly rendering obvious the portion of dependent Claim 2 pertaining to multiple TCP connections fails because, like Leaning, Ala-Honkola does not disclose or suggest 'requesting sequential streamlets' (recited in Claim 1) via multiple TCP connections." PO Resp. 46–47. Patent Owner asserts "Ala-Honkola does not disclose or suggest '***requesting*** sequential streamlets' over multiple TCP connections as claimed because Ala-Honkola requests entire streams—***not streamlets***." *Id.* at 47–48 (citing Ex. 2141 ¶ 179[32]). According to Patent Owner, Ala-Honkola's "server transmit[s] the ***full*** remainder of the stream, not a time-divided portion, or 'streamlet,' with the 'same portion[]' encoded at a different bitrate, as recited in independent Claim 1." *Id.* at 48 (citing

[32] Patent Owner's citation to Dr. Jeffay's Declaration omits the pincite. The cited testimony appears at paragraph 179.

Ex. 1017 ¶¶ 22, 39). Patent Owner adds that "while Ala-Honkola generally refers to using multiple TCP connections to transmit HTTP requests, Ala-Honkola fails to disclose a client device transmitting individual, sequential streamlet requests to a media server over those multiple TCP connections." *Id.* (citing Ex. 2141 ¶ 179).

Petitioner replies that Patent Owner "ignores the combination proposed in the Petition and improperly focuses on Ala-Honkola alone." Pet. Reply 19. Petitioner asserts that "[t]he Petition relies on Leaning for its disclosure of its subfiles (streamlets) and Ala-Honkola for its 'HTTP requests' using multiple TCP connections," and that "[Patent Owner] does not dispute that a POSITA would have combined the references or that Leaning teaches streamlets and concedes that Ala-Honkola teaches multiple TCP connections to transmit HTTP requests." *Id.* at 19–20. Petitioner also notes "[Patent Owner] asserts that Ala-Honkola fails to disclose 'individual, sequential streamlet requests' . . . , but does not dispute that Leaning teaches this limitation or that a POSITA would have combined Leaning with Ala-Honkola." *Id.* at 20.

We agree with Petitioner. Patent Owner does not address Petitioner's proposed combination. Patent Owner complains that neither Leaning nor Ala-Honkola teaches "'requesting sequential streamlets' (recited in Claim 1) via multiple TCP connections." PO Resp. 47. As discussed above, however, Petitioner relies on Leaning for teaching the step of requesting sequential streamlets (recited in claim 1) and on Ala-Honkola for teaching multiple TCP connections (recited in claim 2). Pet. 27–34, 52. Patent Owner does not dispute Petitioner's analysis in this regard. *See* PO Resp.;

*see also id.* at 48 (acknowledging "Ala-Honkola generally refers to using multiple TCP connections"). Accordingly, Patent Owner's argument is unavailing.

Based on the record before us, we find that Petitioner's proposed combination of Leaning and Ala-Honkola teaches the limitation of claim 2. *See* Pet. 52.

*4. Remaining Claims*

As to dependent claims 3–12 and 14–18, Petitioner relies on its obviousness analysis based on Leaning alone. *See* Pet. 50. For the reasons discussed above, we find that Leaning teaches the limitations of these claims. *See supra* Parts III.B, III.C.2, III.C.3.

*5. Objective Indicia of Nonobviousness*

Patent Owner relies on the same evidence of long-felt need, failure of others, unexpected results, commercial success, copying, and industry praise as objective indicia of nonobviousness to rebut Petitioner's asserted obviousness challenge based on the combined teachings of Leaning and Ala-Honkola. *See* PO Resp. 48–72. For the same reasons given above with respect to Petitioner's asserted obviousness challenge based on Leaning alone, we assign some weight to Patent Owner's evidence of commercial success, little to no weight to Patent Owner's evidence of long-felt need, failure of others, unexpected results, copying, and industry praise, and no weight to Patent Owner's evidence related to BT. *See supra* Part III.B.7.

*6. Summary*

After weighing all the evidence of obviousness and nonobviousness, we determine, on balance, Petitioner has demonstrated by a preponderance of the evidence that claims 1–18 would have been obvious over the proposed combination of Leaning and Ala-Honkola.

## IV. PATENT OWNER'S MOTION TO STRIKE

Patent Owner's Motion to Strike seeks "to strike the arguments, opinions, and evidence in Petitioner's Reply (Paper 51) . . . and the Supplemental Declaration of Dr. Henry Houh (EX1026)." PO Mot. 1. The Motion to Strike can be divided into three topics: (1) claim construction, (2) Leaning's clear buffer step, and (3) "other untimely theories." *Id.* at 2, 5, 7. We address each topic.

*A. Claim Construction*

Referring to the claim term "continuous playback," Patent Owner alleges "Petitioner argues for the first time in Reply that this is 'aspirational, ***not limiting***, language." PO Mot. 2. Patent Owner seeks to strike Petitioner's claim construction arguments at pages 1 through 3 of Petitioner's Reply, paragraphs 29 through 41 of Dr. Houh's Reply Declaration,[33] and Exhibit 1045. Exhibit 1045 is a copy of U.S. Application No. 2003/0135631 A1. *Id.* at 5.

[33] Patent Owner identifies section V.B. of Houh's Reply Declaration, which corresponds to paragraphs 29 through 41.

We do not rely on Petitioner's "aspirational" interpretation of "continuous playback." We also do not rely on Exhibit 1045. Accordingly, we consider Patent Owner's Motion to Strike in this regard to be moot. For these reasons, we do not strike Petitioner's reply arguments or supporting evidence regarding claim construction.

*B. Leaning's Clear Buffer Step*

Patent Owner alleges Petitioner has shifted its position on reply because "Petitioner points to a different section of Leaning (14:25–31) and its expert uses that section for the first time to develop an entirely new obviousness modification of Leaning (where Leaning's 'Clear Buffer' step is 'not necessary')." PO Mot. 6 (citing Pet. Reply 4 (citing Ex. 1004, 14:25–31[34]; Ex. 1026 ¶¶ 61–84[35])). Patent Owner asserts "Petitioner . . . cit[es] for the first time a purportedly obvious 'further modification' of Leaning's audio rate-shifting process in which the sound card is run 'at the highest rate envisaged' and the sub-files are '***up-sampled***' to this highest rate before placement in the buffer." *Id.* Patent Owner seeks to strike Petitioner's arguments regarding Leaning's clear buffer step at pages 3 through 5 of Petitioner's Reply as well as paragraphs 61 through 84 of Dr. Houh's Reply Declaration. *Id.* at 6–7.

Petitioner argues that "[Patent Owner] misunderstands Leaning's disclosures and Petitioner's explanations thereof," and that "the Petition,

[34] Patent Owner incorrectly cites Leaning as Exhibit 1009. Leaning is in the record as Exhibit 1004.
[35] Patent Owner cites section VII.C of Dr. Houh's Reply Declaration, which corresponds to paragraphs 61 through 84.

Reply, and supporting declarations all cite to the same embodiment of Leaning—which Leaning refers to as a 'modification'—that does not require clearing the buffer." Pet. Opp. 5 (citing Pet. 36–37 (citing Ex. 1004, 15:3–8); Pet. Reply 3–4 (citing Pet. 36–37)). Petitioner adds that, "[r]egardless, Petitioner's argument [on reply] is directly responsive to the [Response]." *Id.* at 6. According to Petitioner, "[Patent Owner] argued that the 'Clear Buffer' step results in interrupted playback and does not meet the 'continuous playback' limitation," so, "[i]n response, Petitioner[] offered further explanation regarding why, based on the exact same embodiment in Leaning relied upon in the Petition (the 'further modification'), that was not the case." *Id.* (citing PO Resp. 21–22). Petitioner asserts "Leaning explains in this embodiment that 'the sound card could be run continuously at the highest sampling rate envisaged' to avoid interruptions, confirming that clearing the buffer is not mandated by Leaning." *Id.* (citing Pet. Reply 3–4; Ex. 1004, 14:25–15:8).

On the record before us, Petitioner's citation in the Reply to Leaning's passage about audio delivery does not raise a new argument. Petitioner asserts in the Petition "Leaning . . . explains 'that interruption' of the video stream 'can be avoided and therefore it is preferable to employ a criterion which anticipates underflow and avoids it in the majority of cases' by omitting the first determination (*i.e.*, whether the buffer is completely empty)." Pet. 36–37 (citing Ex. 1004, 15:3–8). We note the cited passage from Leaning says specifically, "[W]ith this modification such interruption can be avoided and therefore it is preferable to employ a criterion which anticipates underflow and avoids it." Ex. 1004, 15:3–8. On reply, Petitioner

further asserts, "Leaning describes the identified modification as 'run[ning]' the sound card '***continuously*** at the highest sampling rate envisaged' to avoid 'interruption[s]' in audio due to 're-setting' the sound card." Pet. Reply 4 (citing Ex. 1004, 14:25–15:8). Thus, Petitioner's reliance on Leaning in the Petition highlights the teaching that interruption can be avoided by avoiding buffer underflow, while Petitioner's reliance on Leaning in the Reply provides an example of how Leaning's teaching can be applied for audio delivery. That is not a shift in argument, as Patent Owner says.

Moreover, Petitioner's reliance on Leaning in the Reply is responsive to Patent Owner's arguments. For example, Patent Owner argues "Leaning's playback is ***not*** 'continuous'" because "during ***every shift***, Leaning consistently teaches clearing the buffer then restarting the process to re-fill the buffer with Tp seconds of content," which "introduces both temporal and content discontinuities." PO Resp. 22. On reply, Petitioner asserts "Leaning teaches, by running the sound card 'at the highest sampling rate envisaged' and up-sampling all audio to the highest rate before placement in the buffer, the system can adjust the communicated data rate based on network conditions without clearing the buffer." Pet. Reply 4 (citing Ex. 1004, 14:25–31). In other words, Patent Owner argues that Leaning does not disclose "continuous playback" because buffer clearing introduces discontinuities; and Petitioner responds that Leaning does not require buffer clearing. Petitioner's response is appropriate. *See* 37 C.F.R. § 42.23(b) ("A reply may only respond to arguments raised in the . . . patent owner response.").

For the reasons given, we do not strike Petitioner's reply arguments or supporting evidence regarding Leaning's clear buffer step.

*C. "Other Untimely Theories"*

Patent Owner alleges that Petitioner raises three additional "new theories" on reply. PO Mot. 7–10. We discuss each theory in turn.

Regarding the first alleged theory, Patent Owner asserts "Petitioner extrapolates a Tp [playout time]" that "would cause Leaning's buffer to store only one sub-file before beginning playback, rather than storing three sub-files (*i.e.*, 3 x four-second subfiles must be stored to satisfy Buffer Fullness > 10 seconds), as described in Leaning's exemplary embodiment." *Id.* at 7 (citing Pet. Reply 5). According to Patent Owner, "Petitioner's new, 3-second Tp appears nowhere in Leaning or the Petition." *Id.* Patent Owner seeks to strike Petitioner's arguments regarding playout time at page 5 of the Reply as well as paragraphs 44 through 51 and paragraphs 61 through 84 of Dr. Houh's Reply Declaration.[36] *Id.* at 8.

We do not rely on Petitioner's argument and evidence regarding playout time. Accordingly, we consider Patent Owner's Motion to Strike in this regard to be moot.

Still referring to the first theory, Patent Owner also asserts "Petitioner . . . argues in its Reply that executing the 'Clear Buffer' command would result in the contents of the buffer being ***read*** (*i.e.*, 'decoded' and 'play[ed]

[36] Patent Owner identifies section VII.A of Dr. Houh's Reply Declaration, which corresponds to paragraphs 44–51. Patent Owner also identifies section VII.C of Dr. Houh's Reply Declaration, which corresponds to paragraphs 61 through 84.

until it empties'), rather than being ***cleared*** (*i.e.*, 'emptied, flushed, erased, *etc.*')." PO Mot. 8 (citing Pet. Reply 5, 9–10). Patent Owner seeks to strike Petitioner's argument regarding the meaning of "clear buffer" at pages 5 through 6 and pages 9 through 10 of the Reply as well as paragraphs 61 through 84 of Dr. Houh's Reply Declaration.[37]

We consider Patent Owner's Motion to Strike in this regard also to be moot. We do not rely on Petitioner's position that "clear buffer" could refer to reading the buffer. That position is presented at pages 5 through 6 of the Reply. Additionally, the arguments at pages 9 through 10 of the Reply do not relate to Petitioner's position that "clear buffer" could refer to reading the buffer; they relate instead to Petitioner's position that video playback does not require clearing the buffer.

Turning to the alleged second theory, Patent Owner argues, "For the first time in Reply, Petitioner attempts to address the 'further implications [*i.e.*, serious problems]' Leaning describes when its ***audio*** rate-shifting process is modified for ***video***." PO Mot. 9. Patent Owner asserts "Petitioner introduces a new file format (Motion JPEG2000) to argue that Leaning's sub-files could be 'coded independently' using that format." *Id.* (citing Pet. Reply 6). Patent Owner also asserts "Petitioner argues that Leaning's sub-files could be further modified by either encoding the first frame with an 'I-Frame' or using some unspecified '"principle described in" ***another***

[37] Patent Owner identifies section VII.C of Dr. Houh's Reply Declaration, which corresponds to paragraphs 61 through 84.

***patent***.'"[38] *Id.* (citing Pet. Reply 7–9). Lastly, Patent Owner asserts "Petitioner ***reverses*** Leaning's process for 'encoding . . . ***then*** partition[ing]' sub-files . . . based on a bare-bones assertion that a POSITA would understand how 'encoding-***after***-partitioning' would work." *Id.* (citing Pet. Reply 8). According to Patent Owner, "[e]ach of these significant and complicated modifications to Leaning is entirely new to the Reply," as "[n]owhere are Motion JPEG2000, 'I-Frames,' or 'encoding-after-partitioning' mentioned in the Petition." *Id.* Patent Owner seeks to strike Petitioner's arguments in these regards at pages 6 through 9 of the Reply as well as paragraphs 85 through 126 of Dr. Houh's Reply Declaration.[39] Patent Owner also seeks to strike Exhibits 1046, 1049, 1057, 1058, 1061, 1062, and 1063.

We do not rely on Petitioner's argument and evidence regarding Motion JPEG2000, I-Frames, or encoding-after-partitioning. Accordingly, we consider Patent Owner's Motion to Strike in this regard to be moot.

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[38] It is unclear why Patent Owner emphasizes "another patent." To the extent Patent Owner contends this part of Petitioner's argument is new, we note Petitioner relies on Leaning's reference to teachings from another patent *in response* to Patent Owner's concern about mistracking. *See* PO Resp. 25–26 ("These 'further implications' include 'serious mistracking of the decoder,'[] which is yet another manner in which Leaning's rate shifting interrupts 'playback.'"); Pet. Reply 9 ("Leaning teaches 'the [mistracking] problem can be solved by using the principle described in' another patent." (Citing Ex. 1004, 17:7–10, 18:18–19:5.)). Accordingly, Petitioner's reliance on Leaning in this regard is appropriate.

[39] Patent Owner identifies sections VIII.A–C of Dr. Houh's Reply Declaration. There is no section VIII.C. Sections VIII.A–B correspond to paragraphs 85 through 126.

We now consider the alleged third theory. Referring to claims 5 and 15, Patent Owner asserts "Petitioner introduces yet another modification to Leaning in an attempt to address the discontinuities that occur when a 'B-Frame' is used to encode video, as required by MPEG format." PO Mot. 10 (citing Pet. Reply 17–18). Patent Owner seeks to strike Petitioner's arguments regarding B-Frames at pages 16 through 19 of the Reply as well as paragraphs 161 through 178 of Dr. Houh's Reply Declaration. *Id.*

We do not rely on Petitioner's argument and evidence regarding B-Frames. Accordingly, we consider Patent Owner's Motion to Strike in this regard to be moot.

For the reasons given, we do not strike Petitioner's reply arguments or supporting evidence regarding what Patent Owner calls "other untimely theories."

*D. Summary*

In view of the foregoing, we deny Patent Owner's Motion to Strike as to Petitioner's reply arguments and supporting evidence regarding Leaning's clear buffer step. *See* PO Mot. 5–7. We dismiss as moot Patent Owner's Motion to Strike as to Petitioner's reply arguments and supporting evidence regarding claim construction and what Patent Owner calls "other untimely theories." *See id.* at 2–4, 7–10.

## V. CONCLUSION

For the reasons given, Petitioner has demonstrated by a preponderance of the evidence that claims 1–18 of the '156 patent are unpatentable as follows.[40]

| Claim(s) | 35 U.S.C. § | Reference(s)/ Basis | Claim(s) Shown Unpatentable | Claim(s) Not Shown Unpatentable |
|---|---|---|---|---|
| 1–18 | 103(a) | Leaning | 1–18 | |
| 1–18 | 103(a) | Leaning, Ala-Honkola | 1–18 | |
| **Overall Outcome** | | | 1–18 | |

## VI. ORDER

In consideration of the foregoing, it is hereby

ORDERED that claims 1–18 of the '156 patent have been shown to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Dismiss is dismissed as moot in part and denied in the remaining parts; and

[40] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FUBOTV MEDIA INC. and YANKA INDUSTRIES, INC.,
Petitioner,

v.

DISH TECHNOLOGIES L.L.C.,
Patent Owner.

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HUDALLA, *Administrative Patent Judge*, concurring.

I concur with the outcome of this Final Written Decision, but I come to that conclusion in a different manner than my colleagues.

Regarding secondary considerations of nonobviousness, I find that the developed record of this case does not support that multiple TCP connections or multiple, parallel/simultaneous TCP connections are critical, unclaimed features of the '156 patent. Indeed, Petitioner does not argue as much, and claim 2 recites multiple TCP connections. Notwithstanding, I would reach the same conclusion as my colleagues that Patent Owner is not entitled to a presumption of nexus. I am persuaded by Petitioner's argument

(Pet. Reply 22–23) that Patent Owner cannot credibly maintain that it is entitled to a presumption of nexus to the same products—the MOVE Media Player and "Sling TV"—across nine patents and 120 claims having different scope while citing to substantially the same alleged evidence of secondary considerations. The MOVE Media Player and "Sling TV" cannot be coextensive with the challenged claims here under these circumstances. In addition, Patent Owner's own cited evidence suggests that MOVE's plug-in is a "key" feature of its technology, particularly to ensure "fluidity of playback" (PO Resp. 53 (quoting Ex. 2048) (emphasis omitted)), but the claims do not recite a plug-in. This also undermines Patent Owner's assertions of coextensiveness for claims that all recite "continuous playback."

Otherwise, I agree with my colleagues' finding that Patent Owner has not adduced significant evidence of direct nexus. Accordingly, I join in my colleagues' finding that Patent Owner has failed to establish a nexus between the asserted evidence of secondary considerations and the challenged claims. I also agree that Patent Owner's evidence of secondary considerations is entitled to insignificant weight, or little to no weight, and that it does not outweigh Petitioner's persuasive obviousness showing under the other Graham factors. Thus, I join in my colleagues' determination that Petitioner has shown, by a preponderance of the evidence, that claims 1 and 3–18 would have been obvious over Leaning.

Regarding claim 2, I agree with Patent Owner (PO Resp. 31–35) that Leaning does not teach or suggest the use of multiple TCP connections. I am not persuaded by Petitioner's argument that the mention of HTTP 1.0 in

Leaning renders obvious a particular arrangement of multiple TCP connections as suggested by Petitioner.1 See, e.g., Pet. 40. Patent Owner shows that other possible connection arrangements, such as a single persistent connection, were contemplated by HTTP 1.0. See Ex. 2141 ¶ 112. In my opinion, this undermines Petitioner's assertion that an ordinarily skilled artisan would have implemented multiple TCP connections in Leaning's system. See Belden Inc. v. Berk-Tek LLC, 805 F.3d 1064, 1073 (Fed. Cir. 2015) ("[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention."). Thus, I would determine that Petitioner has not shown by a preponderance of the evidence that claim 2 would have been obvious over Leaning.

Notwithstanding, I agree with and join in my colleagues' analysis of claim 2 based on the Leaning–Ala-Honkola ground and their determination that Petitioner has shown by a preponderance of the evidence that claim 2 would have been obvious over the combination of Leaning and Ala-Honkola.

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