UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FUBOTV MEDIA LLC, YANKA INDUSTRIES, INC., WEBGROUP CZECH REPUBLIC, A.S., and NKL ASSOCIATES, S.R.O.,[1]

Petitioners,

v.

DISH TECHNOLOGIES L.L.C.,

Patent Owner.

Case IPR2024-00919
Patent 8,868,772 B2

PATENT OWNER'S NOTICE OF APPEAL

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
United States Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450
Submitted Electronically via the Patent Trial and Appeal Case Tracking System

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[1] Webgroup Czech Republic, A.S. and NKL Associates, S.R.O. filed a petition in IPR2025-00348 and have been joined as parties to this proceeding. *See* Paper 57.

Please take notice that under 35 U.S.C. §§ 141(c), 142, 319 and 37 CFR §§ 90.2(a), 90.3(a), Patent Owner, DISH Technologies L.L.C. ("DISH") hereby appeals to the United States Court of Appeals for the Federal Circuit from the Patent Trial and Appeal Board's ("PTAB") Final Written Decision in IPR2024-00919, entered November 19, 2025 (Paper 83)[2] (the "Final Written Decision"). A request for Director Review of the Final Written Decision was denied on March 17, 2026 (Paper No. 90). This appeal is timely under 37 C.F.R. § 90.3(a) and Rule 4(a)(3) of the Federal Rules of Civil Procedure as it is filed within sixty-three (63) days of the Order denying the request for Director Review of the Final Written Decision.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Patent Owner identifies the following issues on appeal:

1. Whether the Board's erred in concluding that claims 1–21 of U.S. Patent No. 8,868,772 (the "772 Patent") were shown to be unpatentable;
2. Whether the Board's erred in finding that Leaning discloses or renders obvious "continuous playback," as required by each challenged claim;
3. Whether the Board violated the Administrative Procedure Act and governing precedent by relying on new invalidity theories first raised in Petitioner's Reply
4. Whether the Board improperly relied on internally inconsistent and

[2] A public version of the Final Written Decision published as Paper 86

contradictory expert testimony to support its findings;

5. Whether the Board erred in finding that Patent Owner failed to respond to Petitioner's new Reply theories;
6. Whether the Board improperly adopted or relied upon theories not advanced by Petitioner, including theories expressly disclaimed by Petitioner;
7. Whether the Board erred in concluding that Patent Owner failed to establish a nexus between the claimed invention and the objective indicia of nonobviousness;
8. Whether Board erred in finding that the challenged claims rely on "critical unclaimed features";
9. Whether the Board erred in denying Patent Owner's request for discovery and in failing to identify unnamed real parties-in-interest; and
10. Any Board or Director finding, determination, judgment, or order supporting or related to the Final Written Decision and decided adversely to DISH.

Simultaneous with this submission, a copy of this Notice of Appeal is being filed electronically with the Office of the General Counsel for the United States Patent and Trademark Office. In addition, a copy of this Notice of Appeal, along with the required docketing fees, are being electronically filed with the Clerk's

Office for the United States Court of Appeals for the Federal Circuit.

Respectfully Submitted,

Dated: March 18, 2026

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6 and 90.2(a)(1)(ii), the undersigned certifies that on March 18, 2026, the foregoing **NOTICE OF APPEAL** was served on counsel of record for Petitioners by filing this document through P-TACTS, and by electronic mail sent to the following addresses::

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Further, pursuant to 37 C.F.R. § 90.2(a)(1)(i), the undersigned certifies that a true and correct copy of this Notice of Appeal was filed with the Director of the USPTO by electronic mail sent to: efileSO@uspto.gov

Further, pursuant to 37 C.F.R. § 90.2(a)(2), the undersigned also certifies that

a true and correct copy of this Notice of Appeal was filed electronically with the Clerk's Office of the United States Court of Appeals for the Federal Circuit.

Date: March 18, 2026

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FUBOTV MEDIA INC., YANKA INDUSTRIES, INC.,
WEBGROUP CZECH REPUBLIC, A.S., and NKL ASSOCIATES, S.R.O.,
Petitioner,[1]

v.

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

IPR2024-00919
Patent 8,868,772 B2

Before THU A. DANG, KARL D. EASTHOM, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

Opinion for the Board filed by Administrative Patent Judge EASTHOM.

Opinion Concurring-in-Part and Dissenting-in-Part filed by Administrative Patent Judge HUDALLA.

EASTHOM, *Administrative Patent Judge*.

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

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[1] Webgroup Czech Republic, A.S. and NKL Associates, S.R.O. filed a petition and motion for joinder in IPR2025-00348 and the Board joined them as a party to IPR2024-00919.

I. INTRODUCTION

fuboTV Media Inc. ("fuboTV") and Yanka Industries, Inc. d/b/a MasterClass (collectively "Petitioner") filed a Petition requesting an *inter partes* review of claims 1–21 of U.S. Patent No. 8,868,772 B2 (Ex. 1001, "the '772 patent"). Paper 3 ("Pet.").

After the Institution Decision (Paper 14, "Inst. Dec."), Dish Technologies, LLC, ("Patent Owner") filed a Response (Paper 27, "PO Resp."), Petitioner filed a Reply (Paper 54, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 70, "PO Sur-reply"). Patent Owner also filed a Motion to Strike portions of Petitioner's Reply (Paper 61, "Motion"), Petitioner filed an Opposition to Patent Owner's Motion to Strike (Paper 69, "Opposition" or "Opp."), and Patent Owner file a Reply in Support of its Motion to Strike (Paper 71, "Strike Sur-reply"). After the briefing, the Board conducted an oral hearing and a copy of the transcript is in the record. Paper 81 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6 to enter this Final Written Decision under 35 U.S.C. § 318(a). Petitioner has the burden of proving unpatentability of the challenged claims by a preponderance of the evidence. 35 U.S.C. § 316(e). After reviewing the parties' arguments and cited evidence based on the full record, for the reasons discussed below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–21 of the '772 patent are unpatentable.

A. Real Party in Interest

Petitioner identifies fuboTV Media Inc. and Yanka Industries, Inc. as the real parties-in-interest. Pet. 1.

Patent Owner submits that "[t]he real parties-in-interest are DISH Technologies L.L.C., . . . Sling TV L.L.C. . . . [and] EchoStar Corporation, which after recently merging with DISH Network Corporation, became the ultimate parent company of DISH Technologies L.L.C. and Sling TV L.L.C." Paper 6, 2.

B. Related Matters

The parties state that the '772 patent has been asserted in several district court lawsuits, including *DISH Technologies LLC v. fuboTV Media Inc.*, No. 1:23-cv-00986 (D. Del.); *DISH Technologies LLC v. Yanka Industries, Inc. d/b/a MasterClass*, No. 1:23-cv-01305 (D. Del.); *DISH Technologies LLC v. MG Premium Limited*, No. 2:23-cv-00552 (D. Utah); *DISH Technologies LLC v. WebGroup Czech Republic A.S.*, No. 2:23-cv-00553 (D. Utah); *DISH Technologies LLC v. Vidgo Inc.*, No. 2:23-cv-00624 (D. Utah); *DISH Technologies LLC v. BritBox, LLC*, No. 1:23-cv-08971 (S.D.N.Y.); *DISH Technologies LLC et al. v. Aylo Freesites Ltd. f/k/a MG Freesites Ltd.*, No. 2:24-cv-00066 (D. Utah); and *MG Freesites Ltd. v. DISH Technologies LLC*, No. 3:23-cv-03674 (N.D. Cal., dismissed for lack of personal jurisdiction on January 24, 2024). Pet. 1–4; Paper 6, 2–3.

The '772 patent has been the subject of the following proceedings before the Board: *Aylo Freesites Ltd. v. DISH Technologies L.L.C.*, IPR2024-00047, Paper 8 (PTAB Apr. 16, 2024) (institution denied); *Aylo Freesites Ltd. v. DISH Technologies L.L.C.*, IPR2024-00518, Paper 12 (PTAB Aug. 13, 2024) (institution denied). *See* Pet. 4; Paper 6, 3–6.

The parties also submit that patents related to the '772 patent have been the subject of the following proceedings before the Board: IPR2024-00046 and IPR2024-00516 (challenging U.S. 10,951,680); IPR2024-00147

and IPR2024-00513 (challenging U.S. 10,757,156); IPR2024-00045 and IPR2024-00514 (challenging U.S. 10,469,554); IPR2024-00146 and IPR2024-00515 (challenging U.S. 10,469,555); IPR2024-00048 and IPR2024-00519 (challenging U.S. 8,868,772); IPR2024-00043 and IPR2024-00517 (challenging U.S. 11,677,798); IPR2024-00044 and IPR2024-00512 (challenging U.S. 11,470,138); and IPR2024-00940 and IPR2024-00941 (challenging U.S. 11,991,234); IPR2024-00904 (challenging U.S. 10,951,680); IPR2024-00903 (challenging U.S. 10,469,554); IPR2024-00905 (challenging U.S. 10,469,555); IPR2024-00901 (challenging U.S. 11,677,798); IPR2024-00902 (challenging U.S. 11,470,138); IPR2024-00917 (challenging U.S. 10,757,156); and IPR2024-00918 (challenging U.S. 9,407,564). Pet. 2–4; Paper 6, 3–6.

The following lists reexamination requests for claims of the '772 patent and patents related to the '772 patent: *ex parte* reexamination of U.S. 8,868,772 (filed Sept. 19, 2024), Reexam Control No. 90/019,670 (stayed); *ex parte* reexamination of U.S. 9,407,564 (filed Sept. 19, 2024), Reexam Control No. 90/019,671 (stayed); and *ex parte* reexamination of U.S. 10,757,156 (filed Sept. 20, 2024), Reexam Control No. 90/019,672 (stayed).

C. The '772 Patent (Ex. 1001)

The '772 patent describes adaptive-rate shifting of streaming content. Ex. 1001, code (57), 1:18–21. The '772 patent addresses a purported need to "utilize multiple connections between a source and destination, requesting varying bitrate streams depending upon network conditions." *Id.* at 2:44–48.

Figure 1 of the '772 patent follows:

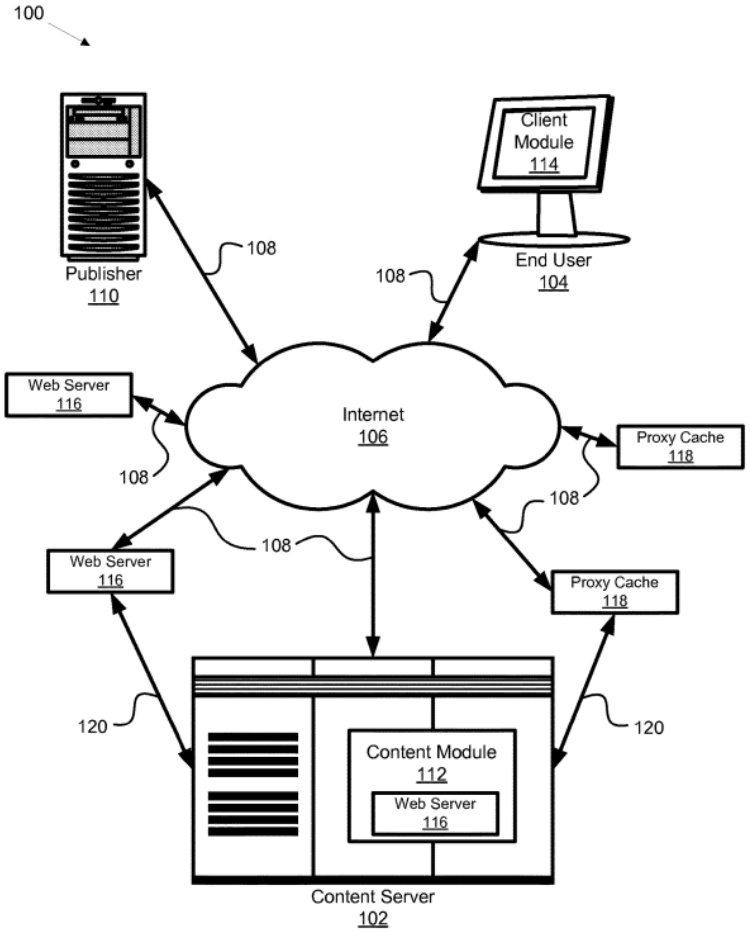

FIG. 1

Figure 1 depicts "system 100 for dynamic rate shifting of streaming content." Ex. 1001, 6:3–5. System 100 includes content server 102, end user station 104, publisher 110, and web server 116. *Id.* at 6:6–19. Publisher 110 transfers content over Internet 106 to content server 102. *Id.* at 6:23–25.

Figure 2b of the ’772 patent follows:

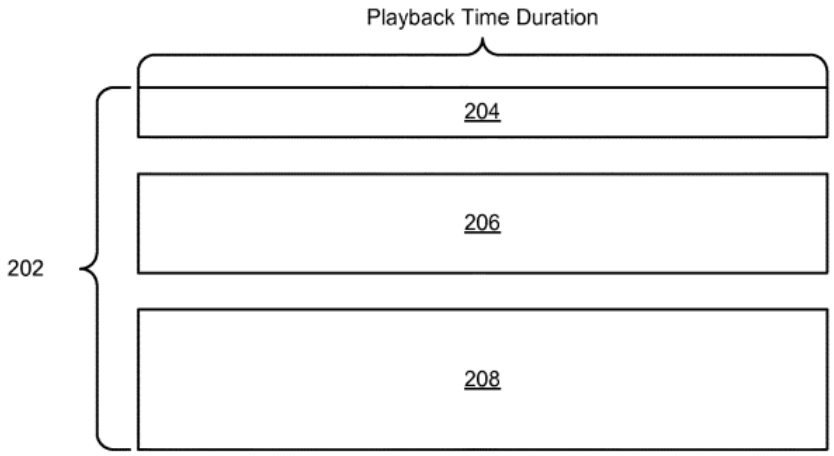

FIG. 2b

Figure 2b depicts “a plurality of streams 202 having varying degrees of quality and bandwidth.” Ex. 1001, 6:46–48. 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 6:48–52.

Figure 2c of the ’772 patent follows:

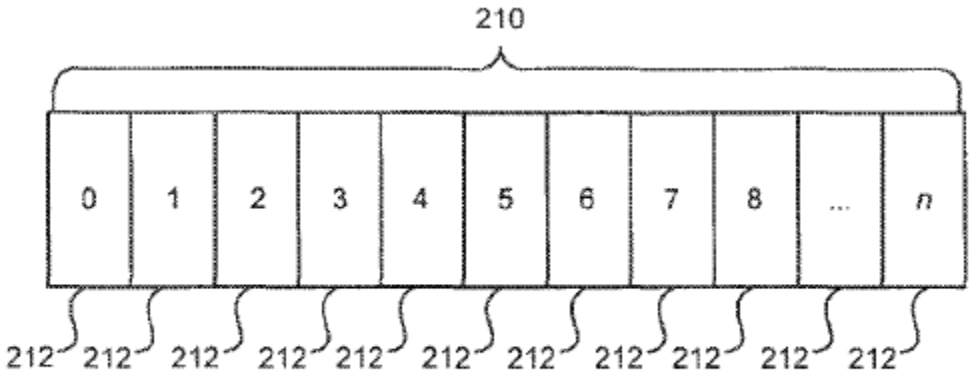

FIG. 2c

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, 6:59–61.

D. Challenged Claims

Petitioner challenges claims 1–21 of the '772 patent. Claim 1 is the sole independent claim:

> 1.[Pre] A method for presenting rate-adaptive streams, the method comprising:
>
> [A][1] streaming by a media player operating on an end user station a video
>
> from a set of one or more servers [2] wherein each of a plurality of different copies of the video encoded at different bit rates is stored as multiple files on the set of servers, [3] wherein each of the multiple files yields a different portion of the
>
> video on playback, [4] wherein the multiple files across the different copies yield the same portions of the video on playback, [5] each of said files having a time index such that the files whose playback is the same portion of the video for each of the different copies have the same time index in relation to the beginning of the video, and wherein the streaming comprises:
>
> [B] requesting by the media player a plurality of sequential ones of the files of one of the copies from the set of servers over a plurality of Transmission Control Protocol (TCP) connections based on the time indexes;
>
> [C] automatically requesting by the media player from the set of servers over the plurality of TCP connections subsequent portions of the video by requesting for each such portion one of the files from one of the copies dependent upon successive determinations by the media player to shift the playback quality to a higher or lower quality one of the different copies, said automatically requesting including
>
> [D] repeatedly generating a set of one or more factors indicative of the current ability to sustain the streaming of the video using the files from different ones of the copies, wherein

> the set of one or more factors relate to the performance of the network; and
>
> [E] making the successive determinations to shift the playback quality based on at least one of the set of factors to achieve continuous playback of the video using the files of the highest quality one of the copies determined sustainable at that time; and
>
> [F] presenting the video by playing back with the media player on the end user station the requested files in order of ascending playback time.

Ex. 1001, 13:22–62 (reference designations by Petitioner); Pet. x–xi.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 6):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–21	103(a)[2]	Leaning[3]
2, 9	103(a)	Leaning, Gamble[4]

[2] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 103 effective March 16, 2013. The '772 patent claims priority to applications filed as early as April 30, 2004. Ex. 1001, codes (22), (60), (63). Petitioner assumes the earliest possible priority date for purposes of this proceeding, April 4, 2004. *See* Pet. 13. Patent Owner does not address the priority date. For this trial, the pre-AIA version of Section 103 applies; however, our analysis would be the same under the current version of the statute.

[3] WO 02/49343 A1, published June 20, 2002. Ex. 1004.

[4] US 2004/0093420 A1, filed Nov. 13, 2002, published May 13, 2004 Ex. 1020.

II. ANALYSIS

A. Legal Standards

In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to the patent owner except in limited circumstances not present here. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Resolving the legal question of obviousness requires resolving underlying factual considerations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, as it is here, objective evidence of nonobviousness. *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements;

instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)).

B. Level of Ordinary Skill in the Art

Petitioner submits that

> a person having ordinary skill in the art (“POSITA”) would have had at least a B.S. degree in computer science or electrical engineering (or comparable degree) and two years of experience in networking or streaming media, or a M.S. in computer science or electrical engineering (or comparable degree) . . . . A higher level of education or specific skill might make up for less experience, and vice-versa.

Pet. 13–14 (citing Ex. 1003 ¶ 51).

Patent Owner does not propose a level of ordinary skill in the art. *See generally* PO Resp.

Based on a review of the record, we adopt Petitioner’s proposed level of ordinary skill in the art because it is consistent with the evidence of record, including the asserted prior art, other references of record, and the ’772 patent specification.

C. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the district--court--type standard, as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2020). Under this standard, claim terms have their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14.

As noted in the Institution Decision, the Petition does not propose any express claim construction, but notes that an Administrative Law Judge (ALJ) in the ITC Investigation (Ex. 1009, Inv. No. 337-TA-1265) construed several terms. *See* Inst. Dec. 9 (citing Pet. 14–15).

The Petition relies on the plain and ordinary meaning as construed by the ALJ and contends that it is unnecessary to construe any claim terms explicitly. *See* Pet. 14–15 (citing 37 C.F.R. § 42.100(b)). Patent Owner contends that "[n]o construction of any claim term is required." PO Resp. 22.

However, the parties dispute the meaning of "continuous playback" and whether the phrase "to achieve continuous playback" is limiting. PO Resp. 28 (arguing "the claimed invention avoids" "interruptions in playback"); Pet. Reply 1 ("shifting quality 'to achieve continuous playback' is aspirational language").

Claim limitation 1E relates to limitations 1D, 1C, and 1F, and recites this term as follows:

> 1[C] automatically requesting by the media player from the set of servers over the plurality of TCP connections subsequent portions of the video by requesting for each such portion one of the files from one of the copies dependent upon successive determinations by the media player to shift the playback quality to a higher or lower quality one of the different copies, said automatically requesting including
>
> 1[D] repeatedly generating a set of one or more factors indicative of the current ability to sustain the streaming of the video using the files from different ones of the copies, wherein the set of one or more factors relate to the performance of the network; and
>
> 1[E] making the successive determinations to shift the playback quality based on at least one of the set of factors *to achieve*

> *continuous playback* of the video using the files of the highest quality one of the copies determined sustainable at that time
>
> 1[F] presenting the video by playing back with the media player on the end user station the requested files in order of ascending playback time.

Petitioner contends that "[t]he 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, "[n]othing in the claims requires uninterrupted playback before, during, or after the shift in quality." *Id.* Petitioner contends that "[a]t most, shifting quality 'to achieve continuous playback' is aspirational language." *Id.* (citing *Bristol-Myers Squibb Co. v. Ben Venue Laboratories*, 246 F.3d 1368 (Fed. Cir. 2001)). In any event, Petitioner shows the "continuous playback" limitation regardless of whether it is limiting, as set forth below.

On this record, the plain language of claim 1 requires an amount of continuous (uninterrupted) playback after an upshift or downshift. *See* Ex. 1001, 3:11–25. The specification states that "the agent controller module determines the higher quality playback can be sustained according to a combination of factors. The factors may include an amount of contiguously available streamlets stored in the staging module, a minimum safety margin, and a current read, ahead margin." *Id.* at 3:11–19. Also, "[t]he agent controller module may be configured to down-shift to a lower quality streamlet when the performance factor is less than a second threshold." *Id.* at 3:20–22. This is similar to the claim language in limitations 1D and 1E, which respectively require "repeatedly generating a set of one or more factors indicative of the current ability *to sustain the streaming of the video* using the files from different ones of the copies,

wherein the set of one or more factors relate to the performance of the network," and "making the successive determinations to shift the playback quality based on at least one of the set of factors *to achieve continuous playback* of the video using the files of the highest quality one of the copies determined sustainable at that time."

That is, claim 1 refers to "achiev[ing] continuous playback" based on what is "sustainable," trading quality to ensure continuous playback. This analysis tracks the ITC Investigation. In the ITC Investigation, addressing a 35 U.S.C. § 112 2nd paragraph challenge and determining that "sustain the streaming" is not indefinite, the ALJ stated that "'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." Ex. 1009, 65–66.[5]

Patent Owner refers to the ITC Investigation and contends that "[b]oth the Petition and Dr. Houh's opening declaration adopted the plain and ordinary meaning of 'continuous playback' and relied upon the ITC's interpretation of that term, which was '***uninterrupted*** viewing of the content.'" PO Sur-reply 4–5 (citing Pet. 14–15; Ex. 1009; Ex. 1003 ¶¶ 52–54); Ex. 1003 ¶ 54 (citing Ex. 1009, 53–61). In particular, the ALJ notes Respondents' concession that "at least in concept, a person of skill may have understood what it means to 'achieve continuous playback' (uninterrupted viewing of the content).'" Ex. 1009, 56 n.9. The ALJ also stated that "'the current ability to sustain the streaming of the video' relates to an analysis of

[5] Citations are to the original page numbers in Exhibit 1009.

network conditions, while the phrase 'continuous playback of the video' is the goal sought through the 'determinations to shift' playback quality." *Id.* at 58–59. However, the ALJ's statements were made in the context of an indefiniteness issue regarding the phrase "sustain the streaming of the video." *See id.* at 56–59. The ALJ did not provide an express construction for "continuous playback." *See id.*

Considering limitations 1C–1E together indicates that the plain meaning of "continuous playback" implies no interruption occurs between a plurality of files with corresponding time indexes after shifting to a higher quality file or after shifting to a higher quality file, where there is no interruption between a previous file and subsequent higher quality file and no interruption between a previous file and subsequent lower quality file to thereby play the requested files in order of ascending playback time.

That is, "continuous playback" means "the presentation of a file and a subsequent file of a different quality without interruption after a rate shift."[6] This is consistent with the ITC's indefiniteness analysis (summarized above).

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[6] In concurrent IPR2024-00917, the Board construes the phrase in the same manner. In IPR2024-00918, the Board construes the phrase similarly, but more narrowly: "continuous playback" means "the presentation of a file and a subsequent file of a different quality when the different quality is low and when it is high without interruption after a rate shift." This is because in IPR2024-00918, the claim limitation at issue specifically defines "files of the highest quality" to include both "a higher quality one of the different copies" and "a lower quality one of the different copies" in the "continuous playback" clause. *See* IPR2024-00918, Paper 80 (final written decision, issued concurrently herewith). In any event, Petitioner shows that Leaning satisfies the claims under both constructions as summarized below.

Both parties cite the prosecution history. Pet. 8–13; PO Resp. 23 n.2; Pet. Reply 2; PO Sur-reply 4. Petitioner's cited prosecution history shows that the '772 patent applicant argued 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." *See* Ex. 1002, 486; Pet. Reply 2–3 (citing Ex. 1002, 118, 486). This comports with the plain meaning that playback is continuous because by matching "the same time index in the video" (*see* limitation 1A5) in one boundary after another without interruption, there is continuous playback at those boundaries (which allows playing back the video in order of ascending playback time according to limitation 1F). *See* Ex. 1002, 486; Pet. Reply 2–3. Other portions of the prosecution history cited by the parties do not shed further light on the claim construction of "continuous playback." *See* Pet. 8–13; PO Resp. 23 n.7; Pet. Reply 2; PO Sur-reply 4.

Patent Owner generally agrees with our construction:

> 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 66:4–8) ("I need to brief that . . . . I would need to think about how many of the streamlets would be necessary in order to practice this claim element. But I would say at the very least, you would need two during a rate switch. So switching from one to the other, that played back continuously. So at the very least, you would need that."). As set forth below, Patent Owner essentially argues that Leaning does not disclose even one shifted file following another file without interruption.

Patent Owner also contends that "[t]he claims do not require eliminating ***all*** interruptions under ***every*** conceivable scenario." PO Sur-reply 7. The claims require uninterrupted playback of at least two subfiles across a quality shift (i.e., rate shift).

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))).

D. Summary of Prior Art References

1. Leaning (Ex. 1004)

Leaning relates to "the delivery, over a telecommunications link, of digitally coded material for presentation to a user." Ex. 1004, 1:3–4.[7]

Figure 1 of Leaning follows:

[7] Citations are to the original page numbers in Leaning.

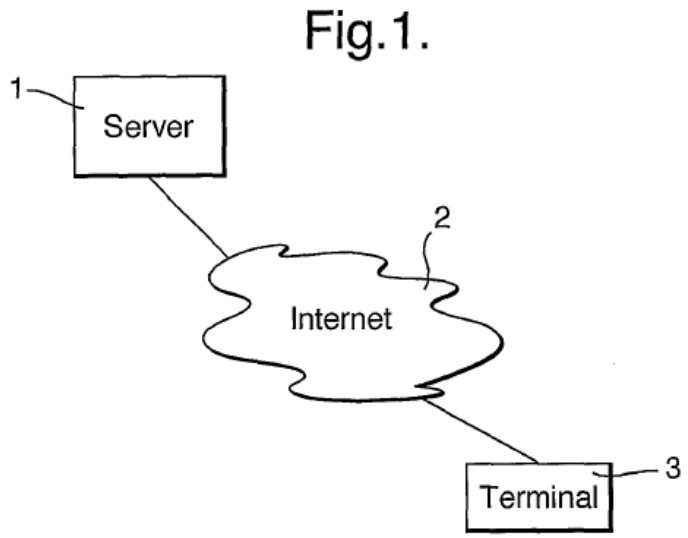


Figure 1 depicts a system server 1 connected via internet 2 to terminal 3. *Id.* at 2:15–16. Server 1 stores data files, and in response to a request for delivery of a data file from user terminal 3, server 1 transmits the file to terminal 3 via internet 2. *Id.* at 2:16–18. Leaning discloses that its system delivers audio signals (for example, recorded music or speech) and video signals. *Id.* at code (57), 16:6–10.

Leaning's system delivers "a sequence of sub-files each of which is independently requested by the terminal." Ex. 1004, code (57). The system allows for switching between alternative sub-file sets representing different data rates (bits per second). *Id.* at 6:9–15, code (57).

To implement this switching between rates, Leaning's "server stores two or more versions of the recording, recorded at different compression rates" and the client terminal's "player program is able to switch automatically between them" by using an "index file" that provides a list of the data rates available and each set of sub-files for each different rate.

Ex. 1004, 6:5–7:5. Leaning's client repeatedly assesses network characteristics and then requests a next sub-file of a higher (or lower) rate based on these assessments. *Id.* at 8:1–9:8.

Leaning teaches 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." Ex. 1004, 12:16–18.

Leaning states that "[m]any conventional sound cards, although capable of operation at a range of different settings, require re-setting in order to change sampling rate, and necessarily this causes an interruption in its audio output." Ex. 1004, 15:27–30. Re-setting requires clearing the buffer, which causes an interruption. *See id.* at 8:20–23, 14:25–15:8.

Leaning also teaches a "modification" that does not require re-setting, thereby avoiding the interruption "in a majority of cases." Ex. 1004, 15:3–6. The modification involves up-sampling an audio card to its highest rate. *Id.* at 14:25–15:8.

2. Gamble

Gamble describes "[a] method and system . . . for transferring large data files over parallel connections." Ex. 1020, code (57). Gamble also discloses a client application for receiving multiple subparts of stream files over a plurality of parallel TCP connections to a server. *Id.* ¶¶ 34–40, 50–52. Gamble also discloses using TCP congestion protocols for the client. *Id.* ¶ 52.

E. Analysis of Claims 1–16, Alleged Obviousness over Leaning

1. Claim 1

a. The Petition's Showing

Petitioner contends that Leaning renders claim 1 obvious. As set forth in the Institution Decision, the Board summarizes how Petitioner demonstrates a reasonable likelihood that Leaning teaches the limitations of claim 1. Inst. Dec. 12–22. We incorporate the summary of Petitioner's showing here from the Institution Decision. *Id.* We determine after a review of the complete record, including secondary considerations, that Petitioner's showing is persuasive. *See id.* As discussed in the next section, Patent Owner disputes that Leaning teaches "a plurality of Transmission Control Protocol (TCP) connections" as recited in limitation 1B and "continuous playback" as recited in limitation 1E.

Petitioner contends that Leaning teaches limitation 1B, "requesting by the media player a plurality of sequential ones of the files of one of the copies from the set of servers over a plurality of Transmission Control Protocol (TCP) connections based on the time indexes." Pet. 31–35.

Petitioner relies on Leaning's teaching that Figure 1 shows "delivery, to a user, of digitally coded audio signals . . . to convey video signals instead of, or in addition to, audio signals" using the "**internet** or other packet network operating in accordance with **the Hypertext Transfer Protocol (see RFCs 1945/2068 for details)**." Pet. 31–32 (quoting Ex. 1004, 4:4–21) (emphasis in original). Petitioner also relies on Leaning's teaching of streaming "the hypertext transfer protocol" from server 1 "an ordinary 'web server.'" *Id.* (quoting Ex. 1004, 4:4–21 (emphasis omitted); citing Ex. 1003

¶ 81). Petitioner asserts that "Leaning . . . require[s] using multiple TCP connections because each HTTP request in HTTP 1.0 must establish a new TCP connection to request and receive each sequential subfile," wherein "a POSITA would have understood Leaning to teach that HTTP operates over a plurality of TCP connections." *Id.* at 33 (noting "the HTTP 1.0 protocol (RCF1945)" (citing Ex. 1003 ¶ 82)).

Petitioner contends that Leaning teaches limitation 1E. Pet. 39–40. Limitation 1E follows: "making the successive determinations to shift the playback quality based on at least one of the set of factors to achieve continuous playback of the video using the files of the highest quality one of the copies determined sustainable at that time."

Petitioner asserts that Leaning teaches choosing the highest quality copy that is sustainable by making the successive determinations based on the factor. Pet. 39–40 (citing Ex. 1004, 8:24–26, 9:3–7, pp. 9–11; Ex. 1003 ¶ 81; Pet. 33–36). Petitioner also asserts that Leaning's system shifts to a higher quality when the measured rate is greater than a first threshold and to a lower quality when the "measured rate" less than a second threshold. *Id.* at 38–39 (citing Ex. 1004, 8:17–26, 23:19–24:2 (claims 4–6); Ex. 1003 ¶ 82).

As to the upshift limitation, Petitioner relies on Leaning's stepup process wherein "if the measured rate exceeds not only the current rate but also the next higher rate for a given period of time . . . increase the current rate." Pet. 39 (quoting Ex. 1004, 8:24–26; citing Ex. 1004, 9–11 (flow chart showing program for rate shifting); Ex. 1003 ¶ 81). As to the downshift limitation, Petitioner relies on Leaning's stepdown process that involves downshifting to a lower quality one of the different copies when certain

conditions are met, including when the measured rate factor is less than a current rate and when the Buffer Low Percentage is greater than a Step Down Threshold. *Id.* at 38 (citing Ex. 1004, 8:17–26). Petitioner also quotes Leaning's claims 4–6 to support its showing as to the downshift and upshift limitations (which amount to summaries of the stepup and stepdown processes). *Id.* at 39 (citing Ex. 1003 ¶ 82).

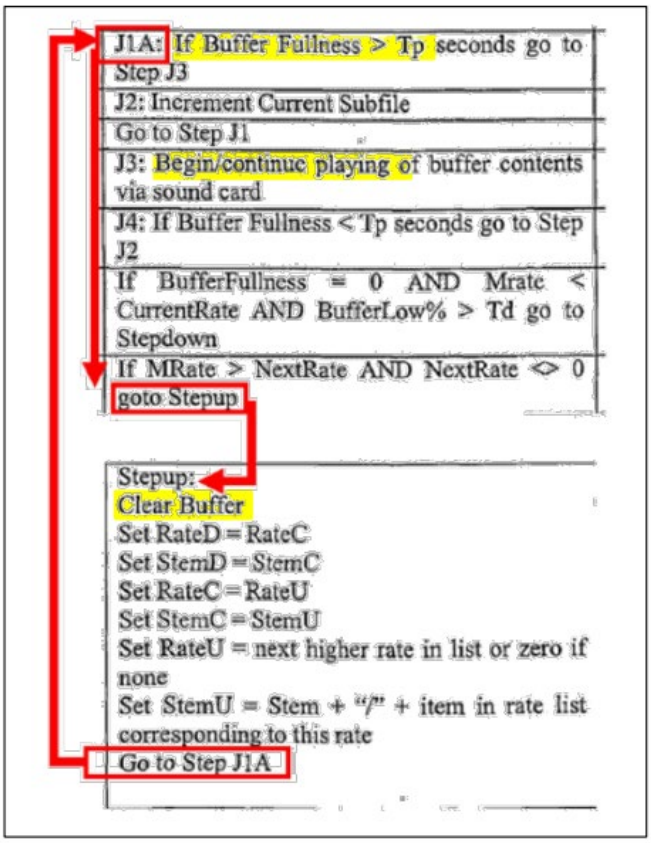
Petitioner also refers to its showing with respect to limitations 1C1 and 1C2 and contends that "Leaning discloses making the successive determinations to shift the playback quality based on the factor to achieve continuous playback of the video using the files (subfiles) of the highest quality copy of the video that is determined to be sustainable at that time." Pet. 39. Petitioner also relies on Leaning's teaching "'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 38 (quoting Ex. 1004, 15:3–8; citing Ex. 1004, 8:11–16).

b. The Parties' Dispute

i. Continuous Playback

Patent Owner disputes Petitioner's analysis for limitation 1D, which recites in part "shift the playback quality . . . to achieve continuous playback." PO Resp. 16–30. Patent Owner argues Petitioner fails to show Leaning teaches this aspect of limitation 1D, relying instead on "disclosures of Leaning that ***disrupt*** playback." *Id.* at 28 (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 26 (citing Pet. 39–40).



Patent Owner's figure above (which is based on Petitioner's figure (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. 26. 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 27 (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 [1E]." PO Resp. 27.

Petitioner counters that "Leaning teaches that buffer clearing is not required." Pet. Reply 5; *see also id.* at 9 (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 (citing Pet. 38–39). 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. 38–39; Ex. 1004, 15:3–8; citing Ex. 1004, 8:11–16).

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." Pet. Reply 4 (quoting Ex. 1004, 14:25–15:8; Ex. 1026 ¶¶ 61–66); *accord* 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 § VII.C; Ex. 2129, 95:4–97:23).

The record supports Petitioner's showing that Leaning does not require buffer clearing. At the cited passage, Leaning states as follows:

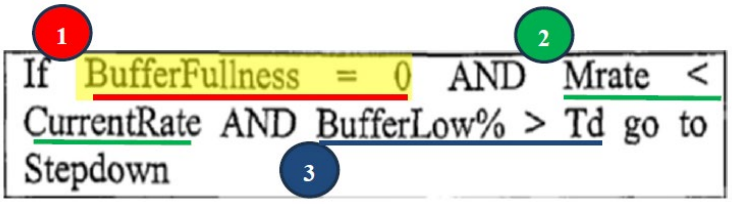
> Recollecting that the criteria discussed earlier [and shown in the flowchart] for automatic data rate switching downwards envisaged a rate reduction only in cases of buffer underflow (involving therefore interruptions in the output), we note that with this modification [i.e., running the sound card continuously at the highest sampling rate and up-sampling sub-files before or after buffering[8]] 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 *avoiding 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

[8] Leaning's proposed "modification" is essentially an alternative embodiment essentially an alternative embodiment that Leaning contemplates as an option in its system and that Petitioner relies upon. *See* Ex. 1004, 14:28–15:8. It is not an obviousness modification proposed by Petitioner. Thus, we refer to it herein as an alternative embodiment.

(emphasis added) (cited by Pet. 25, 39); *accord* Pet. Reply 5–6 (stating that "Leaning emphasizes the importance of starting a 'first sub-file received for a new rate' so that it 'continues from the same point in the recording that the last sub-file at the old rate ended." (quoting Ex. 1004, 12:16–18)).[9] As Petitioner asserts, "[t]his would not be possible if content were discarded." Pet. Reply 5–6 (citing Ex. 1026 ¶ 80). Read in full context, Leaning teaches avoiding buffer clearing to avoid interruptions.

Patent Owner contends 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 (citing Pet. Reply 3–4; Ex. 2141 ¶ 91). To illustrate its position, Patent Owner provides an annotated version of Leaning's disclosure of the three conditions, reproduced below. *Id.* at 11 (citing Ex. 1004, 10).



[9] This teaching in Leaning is consistent with the prosecution history wherein similar boundary alignments support the construction of the "continuous playback" limitation. *See* Ex. 1002, 486; § II.C (claim construction).

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." *Id.* 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.* (citing Pet. 36–38).

The record does not support these arguments. Patent Owner's argument is based on Leaning's system 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 to avoid interruption in output. *Id.* at 15:3–6. Leaning's alternative embodiment entails "employ[ing] 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 its alternative embodiment.

Patent Owner appears to ignore Petitioner's reliance on Leaning's alternative embodiment. *See* Pet. 38 (noting Leaning teaches avoiding interruptions and underflow (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). According to 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 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 9.

This argument is misplaced. Petitioner does not propose modifying any of Leaning's teachings. Rather, Petitioner relies on *Leaning's* alternative embodiment (i.e., "employ[ing] a criterion which anticipates underflow and avoids it"). *See* Ex. 1004, 15:3–6; Pet. 38 (citing and quoting same). Patent Owner acknowledges this fact. *See* PO Sur-reply 12 ("Leaning proposes an alternative embodiment.") (citing Ex. 1004, 14:25–15:8)). Accordingly, Petitioner need not show a reasonable expectation of success for implementing an alternative embodiment expressly disclosed in Leaning.[10]

Patent Owner alleges that 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 (citing Pet. Reply 4; 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

[10] 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 & n.10 (emphasis omitted)). Patent Owner's arguments about playout time and video assume improperly that Leaning requires buffer clearing. Patent Owner's expert, Dr. Jeffay, supports the finding that Leaning's system supports continuous playback when there is no buffer clearing: "To achieve continuous playback . . . . a POSITA would have to abandon one of the central teachings of Leaning—specifically, the clearing of the buffer when changing the data rate." Ex. 2141 ¶ 89. Petitioner properly responds to Patent Owner's mistracking arguments raised in the Response and Petitioner's showing does not modify Leaning's video teachings, as discussed below. *See* PO Resp. 34–35; Pet. Reply 7–8.

refilling the buffer)." *Id.* at 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.

The record does not support Patent Owner. Petitioner's reliance on the cited passage from Leaning in the Petition focuses on Leaning's 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 is applied in the context of audio delivery. 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). Petitioner does not raise a new obviousness argument. Rather, the Reply responds to Patent Owner's claim construction arguments and arguments about alleged interruptions in Leaning. *See, e.g.* PO Resp. 16–22 (addressing Leaning's clear buffer teachings and asserting that they result in discontinuities in playback); *infra* § III (addressing Patent Owner's Motion to Strike).

Moreover, contrary to Patent Owner's arguments, Leaning teaches avoiding any interruptions in the output, not just those "due to underflow that occurs for the 'BufferFullness=0' condition." *See* PO Sur-reply 12. Patent Owner further argues "playback interruption is still present when upshifting" in Leaning because "the teaching cited by Petitioner[] applies only to downshifts." *Id.* at 13.

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 found above and below, however, Leaning prefers to eliminate buffer clearing to avoid interruptions for both types of rate shifts. *See id.* at 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)).

For both types of rate shifts, 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." Ex. 1004, 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). Accordingly, Patent Owner's argument is unavailing.

Patent Owner also argues that "Leaning's 'clear buffer' command is indifferent to whether the sound cards need to be reset." PO Sur-reply 12. Patent Owner argues that "[t]his is borne out by the fact Leaning's 'clear buffer' command is described as being performed in an embodiment that uses a single, fixed sampling rate," because if the "'clear buffer' command is 'avoided' by running the sound card at the same, high sampling rate . . . . there would be no reason for Leaning to require buffer clearing in a scenario where the sampling rate remains constant." *Id.* at 12–13 ("[I]n this embodiment . . . the available data rates . . . ***all use the same audio sampling rate*** . . . ." (quoting Ex. 1004, 12:23–26) (emphasis in original)). Patent

Owner argues that Leaning further supports this indifference by teaching an "'extra delay' when rate shifting because the entire file must be downloaded before playback can resume." *Id.* at 13 (quoting 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.*

Contrary to these arguments, at the cited "constant rate" passage, Leaning does not discuss clearing the buffer but elsewhere discloses that and avoiding consequent interruptions as noted above, and Leaning does not specify that this constant rate highest excludes the highest rate otherwise taught by Leaning to avoid buffer clearing. *See* Ex. 1004, 12:23–26. Similarly, as to the "extra delay" passage, as found above, Leaning discloses elsewhere that there is no interruption when there is no buffer clearing. This "extra delay" for large sub-files only applies to "when starting play and/or when jumps or rate changes are invoked" in context of conventional sound cards. *Id.* at 12:31–33. Leaning therefore implies (in the context of video and audio), that this "extra delay" occurs when there is a clear buffer (which Leaning does not require for audio or video rate shifts). That is, starting necessarily involves a clear buffer, and Leaning expresses a preference for a clear buffer on jumping. *Id.* at 11:19–20 ("We prefer, in the case of the jump, to suspend decoding and clear the buffer so that the new request is sent immediately, but this is not actually essential."). Therefore, Leaning avoids buffer underflow and also does not require buffer clearing for upshifts or downshifts. *Id.* at 2:16–18, 15:3–8, 18:19–23. In the absence of

buffer underflow and buffer clearing, there is no "unavoidable pause" or "extra delay."[11]

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 '772 [p]atent is directed to rate shifting ***video***." PO Resp. 30. Although Patent Owner recognizes Petitioner's contention that the "same principle [applied in 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. 2141 ¶ 67; quoting Ex. 1004, 16:6–7, 16:17–18 (alteration added)). 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 30 (quoting Ex. 1004, 16:20–31; citing Ex. 2141 ¶ 67); *see also id.* at 32–35 (discussing the mistracking problem). Patent Owner presents related arguments in its Sur-reply, arguing that Petitioner "alleges that Leaning's buffer-clearing behavior in ***audio*** could be avoided by applying the same 'up-sampling' logic to ***video***," but that

[11] Patent Owner argues that "Leaning explains that *many sound cards* require a reset to change sampling rates, which inherently causes playback to stop." PO Sur-reply 12 (citing Ex. 1004, 6:10–11) (emphasis added). Leaning states that *"[m]any conventional sound cards*, although capable of operation at a range of different settings, require re-setting in order to change sampling rate, and necessarily this causes an interruption in its audio output." Ex. 1004, 14:26–30 (emphasis added). Neither party addresses whether other sound cards at the time of the invention require re-setting. In any event, Petitioner relies on video cards in Leaning, and Leaning does not teach re-setting a video card, as discussed below.

"Leaning's suggestion to up-sample audio to avoid a reset does not—and cannot—extend to video." PO Sur-reply 13–14 (citing Pet. Reply 9–10). Patent Owner also says that Petitioner's allegation raises a "new obviousness theory." *Id.*

Patent Owner's arguments are unavailing. 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 to its Petition, which says "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)." Pet. 38 (Ex. 1004, 15:3–8); Pet. Reply 3 (citing Pet. 35–36; Ex. 1004, 15:3–8). Petitioner cites other passages in Leaning that further show buffer clearing is not required. *See* Pet. Reply 5–6 (citing Ex. 1004, 12:16–18); *id.* at 10 (citing Ex. 1004, 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 during rate shifts and buffer clearing in video. *See* Ex. 1004, 12:16–18, 15:3–8, 18:19–23 (cited at Pet. Reply 3–6, 10).

As Petitioner shows, "[b]y the time of the alleged inventions, graphics technology had evolved to allow for dynamic adjustments without needing to reset the hardware every time a video changes rate." Pet. Reply 9 (citing Ex. 1026 § VII.C; Ex. 2129, 99:12–104:22 (testifying that existing video

systems and cards in computers did not require re-setting)). Petitioner contends that "Leaning reflects this development, explaining 'the player program incorporates a video decoder,' which POSITAs would have understood was implemented with software." *Id.* at 9–10 (quoting Ex. 1004, 16:6–10; citing Ex. 1026 §VII.C). As Dr. Houh testifies, "a person of ordinary skill in the art would not understand that a video card would need to be cleared and reset to decode at a new bitrate." Ex. 1026 ¶ 99 (testifying that "the video player is decoupled from the display hardware, permitting a video player to use a range of bitrates and framerates without changing the refresh rate of the display monitor (or even permitting multiple different video players to run at different bitrates and framerates on the same display monitor" (citing Ex. 1049, 1:10–2:53 (discussing video graphic cards prior to the date of the invention)).

Patent Owner does not specifically challenge or otherwise undermine these software implemented video card assertions, which the record supports. *See generally* PO Sur-reply. Dr. Jeffay testifies that a "POSITA," aware of Leaning's teachings that clearing the buffer is advantageous for sound cards,

> would have understood that those teachings applied equally to hardware video cards at the time of Leaning for the decompression and display of full-motion, color video, which also would have needed to be cleared and reset in order to decode video according to the specific parameters of any new incoming bitstream.

Ex. 2141 ¶ 89 (citing Ex. 2139 (the "'332 patent"), 10:18–32) (emphasis added). But this testimony does not explain why a software video card requires clearing and a reset (and claim 1 does not require color video).[12]

As Petitioner also shows, "Leaning acknowledges that there are 'further implications' for video . . . [but] ***also teaches how to address them***." Pet. Reply 6 (citing Ex. 1004, 16:11–23). 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)[13]; *see also id.* at 7–9 (discussing Leaning's approach to solving "further implications"). Petitioner adds, "[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 (quoting Ex. 1004, 16:18–20).

The record supports 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

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[12] With respect to re-setting a hardware video card, as Dr. Houh explains, the portion of the '332 patent (Exhibit 2139) cited by Dr. Jeffay describes re-setting a decoder as "[o]ne attempt" to address discontinuity, but the patent describes that attempt as "slow" and opts for "seamless splicing" as a "preferred solution" to solve discontinuity problems arising from using a "simple demultiplexer" to switch between "MPEG transport streams" when "a viewer rapidly scans through channels." *See* Ex. 1026 ¶ 99 (quoting Ex. 2139, 10:18–44); Ex. 2139, 10:18–44.

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

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. 33 ("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 arguments regarding mistracking therefore do not undermine Petitioner's showing for limitation 1E.

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. As Petitioner asserts, "[t]here are no 'further implications' for these videos." Pet. Reply 6–7 (citing Ex. 1004, 16:11–23; Ex. 1026 ¶¶ 85–100). Patent Owner does not appear to dispute Petitioner on this point. *See* PO Resp. 33 ("'Mistracking' arises for video, but not audio, because each

frame of an audio file is ***independently*** decodable without any dependencies between frames.”).

In other words, contrary to Patent Owner’s arguments, Leaning only refers to mistracking with respect to the ITU H.261 video format (which claim 1 does not require). As Petitioner shows, “Leaning explains it is ‘not possible’ to have every sub-file begin with an I-frame,” and “Leaning warns against ‘serious mis[-]tracking’ for only this type of coding.” Pet. Reply 9 (quoting Ex. 1004, 16:24–25, 30–31). In any event, as Petitioner also shows and as discussed above, Leaning solves this mistracking problem. *Id.* (citing Ex. 1004, 17:7–19:5; Ex. 2014; Ex. 2141 §§ VIII.A–B).

Patent Owner contends that another party, Aylo Freesites Ltd. (“Aylo”), “argued that the precise portions of Leaning’s flowchart relied on in this IPR actually disclose a glaring ***two-minute discontinuity*** at ***every upshift***” in the European Patent Office (“EPO”). PO Resp. 27 (citing Ex. 2016, 8–9); Ex. 2141 ¶¶ 81–82).[14] As Petitioner argues, however, Appellant’s argument takes Aylo’s argument before the EPO “out of

[14] The patent under investigation was related European patent EP 3,822,805, titled “Apparatus, system and method for adaptive-rate shifting of streaming content,” which is based upon European Patent Application No. EP 20216568.4, which is a divisional application of European Patent Application No. EP05744015.8 corresponding to the entry into European phase of PCT application PCT/US2005/015091 filed on 02-05-2005 and claiming priority from US 60/566,831 (filed 30-04-2004) and US Application No. 11/116,783 (filed 28-04-2005). Ex. 1044 § 1. The ’772 patent is a grandchild continuation of the latter application. Ex. 1001, code (63). Claim 1 analyzed by the EPO is materially similar to claim 1 with respect to the “continuous playback” limitation issue here. *See* Ex. 1004 § VIII (limitation 1.7).

context." Pet. Reply 10 ("The EPO explained Leaning teaches 'runn[ing] the sound card continuously at the highest sampling rate so as to avoid interruption in the audio output.'" (quoting Ex. 1044 ¶ 6.1.6; Ex. 1004, 14:28–15:6)).

Contrary to Patent Owner's characterization, Aylo actually argued that a two-minute discontinuity "would not make any technical sense at all" because "from the upshift criterion disclosed on page 8 lines 24–26 [of Leaning], the skilled person gathers that the buffer shall precisely not be cleared when upshifting to avoid such jumps." Ex. 2016, 9. Dr. Jeffay's testimony is not helpful on this point for similar reasons. *See* Ex. 2141 ¶¶ 81–82.

Moreover, as Petitioner also argues, similar to our findings here, the EPO "explained 'the skilled person would recogni[z]e that no such resetting of the video card is necessary in the case of rate-switching,'" where "Leaning emphasizes 'frame freezing may not be acceptable for rate-switching in video, which also points to continuous playback of the video.'" Pet. Reply 10 (quoting Ex. 1044 § 6.1.6; citing Ex. 1004, 18:19–23).

Patent Owner also argues that clearing the buffer requires purging it at the time the rate shift occurs. *See* PO Resp. 20–22. Petitioner responds that "Patent Owner assumes that clearing the buffer means that buffer content is discarded, but that makes no sense."[15] Pet. Reply 5 (citing Ex. 1026 ¶¶ 80–84). It is not necessary to resolve this dispute, because Petitioner's primary

[15] As indicated above, Petitioner's primary position, which the record supports, is that it is not mandatory in Leaning's system to clear the buffer in the context of the "Clear Buffer" and "Bufferfullness=0" steps in Leaning's flowchart and in the context of video. *See* Pet. Reply 5; Ex. 1004, 10.

position, which the record supports as indicated above, is that it is not mandatory in Leaning's system to clear the buffer after rate shifting. *See id.*; Pet. 29–31 (relying on Leaning's video teachings for decoding the buffer), 38 (citing Ex. 1004, 15:3–8); Ex. 1004, 10.

In any event, Dr. Houh's explanation shows how Leaning's system works during rate switching and otherwise. Dr. Houh explains that "the sub-files in the buffer have already been received and decoded" such that "[i]t would be inefficient and undesirable to re-do that process, which would add roundtrip time for data transmission and occupy bandwidth." Ex. 1026 ¶ 80. Dr. Houh shows that Leaning supports this, because "Leaning highlights that the 'first sub-file received for a new rate' actually 'continues from the same point in the recording that the last sub-file at the old rate ended,' indicating that there are not any sub-files in between that are being discarded." *Id.* (quoting Ex. 1004, 12:16–18)).

That is, Leaning teaches avoiding interruptions caused by re-setting (clearing) the buffer, and Leaning also teaches continually emptying/clearing the buffer by decoding contiguous subfiles to display them (with or without different rates) in order. *See* Ex. 1004, 10–11 (flow chart), 12:16–18). In addition, when Leaning discusses "clear[ing] the buffer" for video, it is only in the context of curing a mistracking problem for one specific video type (H.261), and even then, Leaning teaches "[i]t may or may not be subjectively acceptable on rate-switching" and then proposes an alternative "four second bridging sequence" to avoid clearing the buffer. *See id.* at 18:18–19:5.

Leaning also teaches that if a requested video sub-file (including for stepup or stepdown) does not exist, Leaning's system simply continues to

empty the remaining buffer portions for viewing as it normally does and as Dr. Houh testifies, instead of discarding the decoded contents. *See* Ex. 1004, 10 (Step J1: "If requested subfile exits, Send requested subfile; otherwise send error message." Step J2: "Increment Current Subfile." Step J4: "If Buffer Fullness < Tp seconds go to Step J2"). Therefore, Leaning teaches there is no interruption between sub-files, as Dr. Houh testifies.

Patent Owner also argues that "Petitioner[] never explain[s] how a POSITA would have been motivated to make these modifications—much less with a reasonable expectation of success." PO Sur-reply 3; *accord id.* at 9 (similar argument as discussed above). Assuming Patent Owner refers to Leaning's video teachings by reference to the alleged "modifications" (*see id.* at 15–16), contrary to Patent Owner's argument, as found above, Petitioner does not modify Leaning, it relies on Leaning's implied and express teachings (such as Leaning's alternative embodiment), as interpreted via the credible testimony of Dr. Houh.

Contrary to Patent Owner's arguments, the Petition cites and quotes numerous video teachings in Leaning, and Petitioner does not rely on modifying Leaning's video teachings. *See, e.g.*, Pet. 17 (describing delivery of video sub-files with different rates (citing Ex. 1004, code (57)), 19–20 (describing "terminal for playing audio or video material which is stored on a remote server as a set of files representing successive temporal portions of the said material") (citing Ex. 1004, 1:3–29 (describing "the invention" as including "video" and a "buffer" without mentioning any buffer clearing)), 21 (relying on Leaning's "video card" without any mention of buffer clearing (citing Ex. 1004, 4:4–15)), 22 (citing Ex. 1004, 16:6–12 ("The same principle may be applied to the delivery of video recordings. The manner of

partitioning the file into sub-files is unchanged." "[T]he player program incorporates a video decoder.")), 22 (citing Ex. 1004, 1:3–29), 23 (citing Ex. 1004, code (57) (describing "[d]elivery of audio or video"), 26 ("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." (quoting Ex. 1004, 12:16–18) (emphasis in original)).

Therefore, Petitioner shows that Leaning's teachings demonstrate a reasonable expectation of success in its description of streaming continuous video with continuous playback, where Leaning is a prior art reference and presumed enabling for all it teaches. *See, e.g.*, Ex. 1004, 6:5–6 ("The sub-file naming convention used here, of a simple fixed length sequence of numbers, starting with zero, is preferred as it is simple to implement . . . ."), 6:13–15 ("[T]he server stores two or more versions of the recording, recorded at different compression rates (for example at compressions corresponding to (continuous) data rates of 8, 16, 24 and 32 kbit/s respectively) and the player program is able to switch automatically between them."), 16:11–12 (For video, "[a]s in the audio case, there may be two or more recordings corresponding to different data rates, *selected by the control mechanism already described*." (emphasis added)), 12:6–20 (describing continuous sub-files).

Like the '772 patent, Leaning's system "anticipat[es] underflow and avoids [interruptions] in the majority of cases." Ex. 1004, 15:5–6; Ex. 1026 ¶¶ 62–63. Also like the '772 patent, Leaning avoids interruptions by requesting lower rates via downshifts. *See* Ex. 1004, 8:17–32, 15:3–8; Ex.

1026 ¶ 63; PO Resp. 12 (contending "the '772 Patent adopts an adaptive bitrate streaming approach, entailing the creation of different copies of its streamlets at different bit rates (e.g. low, medium, and high quality) and inserting a step into the process . . . that responds to changes in network conditions"). Patent Owner concedes that "[t]he claims do not require eliminating ***all*** interruptions under ***every*** conceivable scenario. Rather, they require a method/system of playback that automatically adjusts in response to network performance to ***avoid*** playback interruption. If that method/system sometimes succeeds, it is within the scope of the claims." PO Sur-reply 7.

In summary, we find that Petitioner persuasively shows that Leaning teaches the features of claim 1. Prior to resolving the obviousness dispute, we consider Patent Owner's evidence of secondary considerations of obviousness together with Petitioner's showing with respect to Leaning.

ii. Multiple TCP Connections

Limitation 1B recites "requesting by the media player a plurality of sequential ones of the files of one of the copies from the set of servers over a plurality of Transmission Control Protocol (TCP) connections based on the time indexes." As noted above, Petitioner relies on Leaning's disclosure of HTTP 1.0, which Petitioner asserts requires a new TCP connection for each sub-file requested:

> For example, a POSITA would have known that a terminal requesting sequential subfiles from an ordinary web server using *the HTTP 1.0 protocol (RCF1945) (EX1004, 2:10) as disclosed by Leaning* would require using multiple TCP connections because each HTTP request in HTTP 1.0 must establish a new TCP connection to request and receive each sequential subfile.

> EX1003, ¶ 82. Thus, *a POSITA would have understood Leaning to teach that HTTP operates over a plurality of TCP connections.*

Pet. 33 (citing Ex. 1003 ¶ 82) (emphases added).

Patent Owner does not dispute that HTTP 1.0 requires a new TCP connection for each sub-file requested. *See* PO Resp. 39. Rather, Patent Owner relies on another HTTP standard, HTTP 1.1, which Leaning also discloses. *See id.* at 39–40.

Patent Owner asserts that "Leaning . . . never mentions, nor has any use for, multiple TCP connections." PO Resp. 36. Patent Owner argues that Leaning uses an ordinary web server and generates an "'HTTP 404 – File not found' error message." *Id.* at 37 (citing Ex. 2141 ¶ 109). Patent Owner states that "[a]s Leaning explains, its playback process 'is repeated until a "file not found error" is returned' by the server to each client terminal." *Id.* (quoting Ex. 1004, 6:1–2). According further to Patent Owner, Leaning does not "seek[] to avoid receiving error messages," rather, "Leaning seeks to create and use them to show the end of a content file." *Id.* Patent Owner also asserts that if Leaning's system does not receive an error message, "the playback process would simply stall while waiting for the requested sub-file to be received and decoded." *Id.* at 37–38 (annotating portions of Ex. 1004, 10).

Therefore, Patent Owner asserts that "[i]f . . .the buffer becomes empty" in Leaning's, system, Leaning "specif[ies] the occurrence of . . . playback interruptions," and "Leaning further 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. 38 (first quote quoting Ex. 1004, 6:3–4) (alteration in original). Patent Owner also

asserts that because Leaning teaches an expectation to receive sub-files in the order of their original sequence, this "confirms that Leaning fails to contemplate the use of multiple TCP connections." *Id.* (citing Ex. 1004, 12:9–11:16).

According to Patent Owner, "[a]s Dr. Jeffay explains HTTP 1.1 was in widespread use and, by default, used persistent TCP connections wherein a client could make multiple requests of a server on a single TCP connection." PO Resp. 39 (citing Ex. 2141¶ 112; Ex. 2137 (RFC2068–HTTP/1.1). Therefore, Patent Owner asserts "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 40.

Patent Owner's arguments are unavailing. As Petitioner shows, Leaning discloses HTTP 1.0 by expressly citing to RFC1945. Pet. 33 (identifying the "HTTP 1.0 protocol (RCF1945)" (citing Ex. 1004, 2:10 ("[T]he network is the internet or other packet network operating in accordance with the Hypertext Transfer Protocol (see RFCs 1945/2068 for details)." Patent Owner does not dispute that Leaning discloses RFC1945. *See* PO Resp. 36–40; Pet. Reply 13 ("Leaning expressly rel[ies] on HTTP 1.0 as RFC1945 . . . ***not*** HTTP 1.1." (citing Pet. 33; Ex. 1004, 2:10)); Ex. 1028 (Jeffay-Ex.1 (RFC1945)); Ex. 1027 (Jeffay Deposition) 79:3-6). The title of Exhibit 1028, RFC1945, is "Hypertext Transfer Protocol - - HTTP/1.0." Ex. 1028, 1.

As noted above, Patent Owner also does not dispute that HTTP 1.0 requires a new TCP connection for each sub-file requested. *See* PO Resp. 39; Pet. 33 (Ex. 1003 ¶ 82); Pet. Reply 13 ("[Patent Owner] does not dispute

that in the well-known HTTP 1.0 each request establishes a new connection.") (citing PO Resp. 39; Ex. 1027, 79:1–6). At the cited portion of his deposition testimony, Dr. Jeffay verifies that Leaning discloses HTTP 1.0:

> Q. "Do you agree that Leaning discloses the use of HTTP/1.0?"
>
> A. "At least in its reference to RFC[]1945."

Ex. 1027, 79:1–6.

As Petitioner also argues, the later HTTP 1.1 standard does not teach away from an earlier HTTP 1.0 standard or render it non-obvious. Pet. Reply 13.[16] Petitioner also shows that "HTTP 1.1 explicitly contemplates multiple TCP connections between a single client and server even with persistent connections: 'Clients . . . SHOULD limit the number of

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[16] The Dissent contends that "Patent Owner shows that other possible connection arrangements, such as a single persistent connection, were contemplated by HTTP 1.0. *See* Ex. 2141 ¶ 112." At Exhibit 2141, paragraph 112, Dr. Jeffay cites Ex. 2138 at page 105, which states that "[p]ersistent connections in HTTP/1.0 are explicitly negotiated *as they are not the default behavior*. HTTP/1.0 *experimental implementations of persistent connections are faulty*, and the new facilities in HTTP/1.1 are designed to rectify these problems." Ex. 2138, 105 (emphasis added). On the other hand, Dr. Houh testifies that "[i]t is well-known (and was well-known at the time) that in HTTP 1.0, each new HTTP request establishes a new TCP connection, resulting in the claimed multiple or plurality of TCP connections." Ex. 1026 ¶ 128; *accord* Ex. 1003 ¶ 59. Patent Owner does not dispute that it was well known that each new HTTP request establishes a new TCP connection, resulting in the claimed multiple or plurality of TCP connections. Given that Leaning discloses using HTTP 1.0 with TCP via RFC-1945, even if another possibility exists for a single TCP persistent connection (which had problems and was not a default connection), Leaning contemplates well-known multiple HTTP 1.0 TCP connections (the only other viable alternative on this record).

simultaneous connections" to not "more than 2.'" *Id.* at 13–14 (quoting Ex. 1047, 47; citing Ex. 1026 § IX).

Accordingly, it is not necessary to address Patent Owner's other arguments centering on Leaning's use of error messages to foster interruptions, and other teachings, as summarized above. To the extent they are relevant given Leaning's disclosure of HTTP 1.0 to describe multiple TCP connections and HTTP 1.1's similar disclosure, Petitioner persuasively shows that Patent Owner mischaracterizes the teachings or takes them out of context.

For example, Petitioner shows that Leaning's "use of an application-layer error message to indicate the end of a content file says nothing about its use of TCP connections." Pet. Reply 12 (citing Ex. 1026 ¶¶ 130–134). As Dr. Houh explains, "[a]ny 'error Leaning discloses generating would therefore relate to the application layer," wherein the transport layer handles TCP's data transfer and delivery (including out of packet order). *See* Ex. 1026 ¶¶ 130–132. Therefore, Patent Owner's arguments do not show that Leaning teaches away from or otherwise renders unobvious multiple TCP connections as contemplated by its disclosure of RFC1945.

Petitioner also shows that Leaning states that "it should be noted that ***if*** . . . there is no expectation that a sub-file will be followed by a sub-file other than that which immediately follows it in the original sequence, ***then*** it matters little where the boundaries between the sub-files are located." Pet. Reply 12–13 (quoting Ex. 1004, 12:9–11) (emphasis in original). Therefore, contrary to Patent Owner's arguments, this statement "has nothing to do with TCP and instead relates to 'the process of partitioning the original file into sub-files.'" *Id.* at 13 (quoting Ex. 1004, 12:8). That is, Leaning's

system specifically keeps track of sub-file boundary locations for rate switching such that the "'if' statement does not apply." Ex. 1026 ¶ 133 (citing Ex. 1004, 12:16–18 ("[w]here . . . the signal is coded in frames, a sub-file should contain a whole number of frames," and "[i]n the case of rate switching, it is . . . highly desirable that the sub-file boundaries are the same for each rate")).

As Dr. Houh also explains, Leaning's "error message" "serves only the straightforward purpose of informing the system that the transmission of the complete audio or video file is complete *and there are no additional sub-files remaining*." Ex. 1026 ¶ 131 (emphasis added). That is, contrary to Dr. Jeffay's testimony, Leaning's system implements TCP and does not attempt to incur interruptions as it seeks to avoid packet loss (where TCP handles out of order packets). *See id.* ¶¶ 130–131 (citing Ex. 1060, 7–8; Ex. 2141 ¶¶ 109–110).

Patent Owner asserts in Sur-reply that "in the Ogdon IPRs, Dr. Houh identified the exact same functionality as a 'critical' feature purportedly missing from DISH's commercial embodiment—not inherent in the TCP protocol itself as he now argues." PO Sur-reply 18 (citing IPR2024-00043, Ex. 1028 ¶ 74). Patent Owner paraphrases Dr. Houh's testimony in the Ogdon '43IPR as stating that MOVE's "use of multiple TCP connections" established a "critical unclaimed feature." *See id.* (paraphrasing Ogdon '43IPR, Ex. 1028 ¶ 74). Therefore, Patent Owner alleges that "Dr. Houh's contradictory opinions are not to be trusted." *Id.*

These statements are unavailing. In the particular Ogden '43IPR, IPR2024-00043, Dr. Houh testified the "critical unclaimed feature" is "using multiple parallel TCP connections for requesting streamlets in parallel."

IPR2024-00043, Ex. 1028 ¶ 74. Contrary to Patent Owner's argument, claim 2 here does not recite this feature and Dr. Houh does not testify here that it is inherent in HTTP 1.0.

Based on the full record, we find that Leaning teaches and enables limitation 1D and claim 1 with a reasonable expectation of success.

c. Secondary Considerations of Obviousness

Legal Standards

Objective evidence of non-obviousness "may often be the most probative and cogent evidence in the record" and "may often establish that an invention appearing to have been obvious in light of the prior art was not." *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012) (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983)). Objective evidence may include long-felt but unsolved need, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17–18; *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

"For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the *claimed invention*." *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (quoting *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010)).

"A nexus may not exist where, for example, the merits of the claimed invention were 'readily available in the prior art.'" *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016) (quoting *Richdel, Inc. v.*

Sunspool Corp., 714 F.2d 1573, 1580 (Fed. Cir. 1983)). "Additionally, there 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)). "There is no hard-and-fast rule for this calculus, as '[q]uestions of nexus are highly fact-dependent and, as such are not resolvable by appellate-created categorical rules and hierarchies as to the relative weight or significance of proffered evidence.'" *Id.* at 1221–1222 (quoting *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1331 (Fed. Cir. 2016) and reasoning that "because claims 2 and 14 are considerably broader than the particular features praised in the articles, it would be reasonable for the Board to assign this evidence little weight").

"[A] patentee is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product '*is* the invention disclosed and claimed.'" *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988)). Presuming nexus is not appropriate "[w]hen the thing that is commercially successful is not coextensive with the patented invention." *Id.* at 1373 (quoting *Demaco*, 851 F.2d at 1392). Presuming nexus may be appropriate if "the unclaimed features amount to nothing more than additional insignificant features." *Id.* at 1374. "A patent claim is not coextensive with a product that includes a 'critical' unclaimed feature that is claimed by a different patent and that materially impacts the product's functionality by lead[ing] to [a product that functions better] in even the worst conditions." *Id.* at 1375.

"A finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations"; rather, "the patent owner 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*, 994 F.3d at 1374–75 (quoting *In re Huang*, 100 F.3d 125, 140 (Fed. Cir. 1996)). In other words, "[w]ithout the presumption, a patentee may establish nexus by showing the secondary considerations evidence is the 'direct result of the unique characteristics of the claimed invention,'" *Magseis FF LLC v. Seabed Geosolutions (US) Inc.*, 860 F. App'x 746, 751 (Fed. Cir. 2021) (not for publication) (quoting *Huang*, 100 F.3d at 140), "rather than a feature that was 'known in the prior art,'" *id.* (quoting *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed.Cir.2006).

In *Zaxcom*, the Federal Circuit indicated that *Fox Factory*'s "coextensiveness" requirement is the "commensurate in scope" standard regarding the "presumption of nexus." *See Zaxcom, Inc. v. Lectrosonics, Inc.*, 2022 WL 499843, at *2 (Fed. Cir. 2022). Specifically, *Zaxcom* held that "the Board determined that Zaxcom's evidence of industry praise and long-felt need was entitled to *a presumption of nexus*, noting that these indicia were *commensurate in scope* with the claims as now narrowed, . . . a *determination that comports with the legal standards for a presumption*." *Id.* (emphasis added) (citing *Fox Factory*, 944 F.3d at 1373; *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)).

Several cases prior to *Fox Factory* address the commensurate in scope requirement. For example, in *MeadWestVaco Corp. v. Rexam Beauty and Closures, Inc.*, 731 F.3d 1258, 1264 (Fed. Cir. 2013), the court held that the

district court erred by considering "secondary considerations of non-obvious [that] involved only fragrance-specific uses, but the claims now at issue [i.e., claims 15 and 19] are not fragrance-specific." The district court erred because it "credited evidence advanced to show long-felt need and commercial success specific to the perfume industry" but some claims at issue "are not limited to fragrance-specific claims." *See id.* at 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 *Ayst Techs., Inc. v. Emtrak, Inc.*, 544 F.3d 1310, 1316 (Fed. Cir. 2008); *see also 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."); *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971) (finding commercial success and long-felt need with respect to " 'cups' used in vending machines" and "agree[ing] with "[t]he solicitor's position . . . that the objective evidence of non-obviousness is not commensurate with the scope of claims 1–3 and 10–16, reciting 'containers' generally, but establishes non-obviousness only with respect to 'cups' and processes of making them").

ii. Introduction

Patent Owner offers evidence of secondary considerations with respect to claim 1 of the '772 patent. Ex. 2071 (claim chart with respect to MOVE Media Player); PO Resp. 49 (citing Ex. 1009, 213–216; Ex. 2141 ¶¶ 187, 191, 247; Ex. 2071). In particular, Patent Owner cites certain evidence of secondary considerations related to the MOVE Media Player, a

product of MOVE Networks, Inc. ("MOVE Networks"), and Sling TV, which Patent Owner describes as "one of the first streaming services for live television channels in the United States."[17] *Id.* at 48, 47–71; PO Sur-reply 22–29. In particular, Patent Owner contends that the MOVE Media player and Sling TV embodies the adaptive-bitrate ("ABR") technology of the challenged claims and are coextensive with claim 1. *See* PO Resp. 47–49. Patent Owner also notes that the ALJ in the ITC Investigation found that some of the same evidence of secondary considerations supported a finding of nonobviousness. *See id.* at 49 (citing Ex. 1009, 213–17; Ex. 2007, 2 (Commission adopting ALJ findings)).

Petitioner disputes that there is a nexus between the challenged claims and the asserted secondary considerations. Pet. Reply 23–26. Further, even if there were a nexus, Petitioner argues that Patent Owner's evidence of secondary considerations does not overcome Petitioner's strong showing of obviousness.[18] *Id.*

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[17] According to Patent Owner, one of Patent Owner's predecessors acquired MOVE Networks, including the challenged patent, in 2010 and "used the underlying technology and patent to launch Sling TV." PO Resp. 48 (citing Ex. 2020 ¶ 15; Ex. 2023; Ex. 2100 ¶ 30; Ex. 2142). Patent Owner informs that "Sling TV L.L.C. [is] the exclusive licensee of the '272 patent." Paper 6, 2.

[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 (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 the Petition and provided a preliminary rebuttal. *See* Pet. 60–63. This undermines Patent Owner's argument. Further, Patent Owner's argument is premised on the

iii. Nexus

A patent owner is entitled to a presumption of nexus when it shows that the asserted objective evidence is tied to a specific product that "embodies the claimed features, and is coextensive with them." *Brown & Williamson Tobacco Corp. v. Philip Morris, Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000). A patent owner is further "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 (internal quotation omitted).

Patent Owner contends that "MOVE's contemporaneous documents show that MOVE's Media-Player embodied, and was coextensive with, the Challenged Claims." PO Resp. 50 (citing Ex. 2141 ¶¶ 193–209; Ex. 2021; Ex. 2022). In support of this contention, Patent Owner cites Dr. Jeffay's testimony and the analysis from the ALJ in the ITC Investigation that allegedly show that "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 for claim 1 analyzing the MOVE Media Player. *See* Ex. 2071 (claim 1 chart with

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assumption that the record in the ITC for secondary considerations was the same as Patent Owner presents here. As discussed below, key differences between the two records exist. Under these circumstances, we decline to fault Petitioner or disregard Petitioner's evidence based on the way it rebutted evidence of secondary considerations in this case.

MOVE Media Player); Ex. 2141 ¶¶ 191, 193 (citing claim chart).[19] Based on Dr. Jeffay's analysis and the ITC's determinations, Patent Owner argues that it is entitled to a presumption of nexus. PO Resp. 50–51. Patent Owner also contends that certain secondary considerations related to the MOVE Media Player are directly linked to claimed features. *Id.* at 50–54; PO Sur-reply 25–28. Patent Owner contends that "[t]he record is replete with undisputed evidence that both Sling TV and the MOVE player . . . practiced the claimed invention in the same manner." PO Sur-reply 26 (citing Ex. 1030, 71:12–22).

Petitioner argues that Patent Owner's "nexus arguments separately fail because PO's evidence ties the alleged secondary considerations to unclaimed features." Pet. Reply 22. As examples, Petitioner (Pet. 23) quotes Patent Owner's argument alleging a key to MOVES success: "***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***.'" PO Resp. 51–52 (quoting Ex. 2048) (emphasis and alterations in original except third) (citing Ex. 2141 ¶ 216). Petitioner explains that the reason why the plug-in is key as that it "manages delivery, assembles and renders the stream, and ***offers DRM [Digital Rights Management], geotargeting, and extremely in-depth reporting***." Pet. Reply 22 (quoting Ex. 2048, 1) (emphasis and

[19] Dr. Jeffay's declaration mistakenly refers to Exhibit 2071 as the "'156 Patent Claim 13 Chart." Ex. 2141 ¶¶ 191, 193. This is a harmless error. Exhibit 2071 is a claim chart showing "exemplary aspects of certain streaming services and products provided by MOVE Networks, Inc. ('MOVE') that practice the limitations of claim 1 of the '772 Patent." Ex. 2071, 1.

alteration in original). The fact that Patent Owner relies on MOVE's plug-in features as a key to success undercuts its nexus arguments. None of the claims 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 21 (citing "Ogdon FWDs").[20] Petitioner argues that this panel should follow the Board's determinations in the Ogdon IPRs (*see supra* note 18) 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."), 22–23 ("[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's arguments also show that the Ogdon IPRs are important in resolving the nexus issue here. Specifically, Patent Owner points to the Ogdon '43IPR in relation to a "critical feature" as involving "use of multiple TCP connections." PO Sur-Reply 18–19 (citing Ogdon '43IPR, Ex. 1028 ¶ 74). However, this mischaracterizes Dr. Houh's testimony (by omission). That is, at the cited paragraph of the Ogdon '43IPR, Dr. Houh testified the "critical unclaimed feature" is "*using multiple*

[20] The "Ogdon FWDs" refers to our Final Written Decisions in IPR2024-00043 ("Ogdon '43IPR), IPR2024-00044, IPR2024-00045, IPR2024-00046, and IPR2024-00146 ("Ogdon IPRs") in which "Ogdon" was the primary prior art reference.

parallel TCP connections for *requesting streamlets in parallel*." Ogdon '43IPR, Ex. 1028 ¶ 74 (emphasis added).

Several documents Patent Owner relies upon here to show a nexus support the testimony of Dr. Houh in the Ogdon IPRs. For example (PO Resp. 51 (citing Ex. 2021)):

> 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).

In its Sur-reply, Patent Owner argues that "[e]very Challenged Claim here expressly recites those features" that the Ogdon IPRs cite as "unclaimed," namely "multiple TCP connections." PO Sur-reply 24 (citing Ogdon '43IPR, Paper 59, 41–59). Contrary to this argument, claim 1 does not require "*multiple parallel* TCP connections for *requesting streamlets in parallel*." *See* Ex. 2021, 6 (quoted above). For this reason alone, claim 1 is not coextensive with Patent Owner's evidence of nonobviousness because it does not recite a critical unclaimed feature.[21]

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[21] The opinion concurring-in-part and dissenting-in-part 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 '772 patent." For purposes of clarity, we note that we find multiple *parallel* TCP connections (not merely multiple TCP

Still further, in the Ogdon '43IPR FWD, the Board noted that "[a]s 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, 45 (emphasis added).

In addition, the Board in the Ogdon '43IPR indicated that "streamlets" (portions of files) spread over multiple TCP connections were important:

> We also have considered Patent Owner's argument that "MOVE [Networks'] and [Patent Owner]'s successes are attributable to more than the mere optional use of multiple TCP connections and HTTP web servers" because "*it was precisely the claimed 'streamlets' that enabled clients to request the video portions via simple HTTP request over multiple TCP connections rather than from specialized media servers*." PO Sur-reply 23 (quoting Ex. 2011, 3, 7). Yet the very evidence Patent Owner cites for this proposition suggests that any alleged success is due to more than just the streamlets. *See* Ex. 2011, 3.

Ogdon '43IPR, Paper 59, 46 (emphasis added).

Still other evidence cited by both parties supports the finding that the concept of "*multiple simultaneous streams*" (i.e., parallel streamlets) is a critical unclaimed feature to support "continuous playback." *See* Ex. 2039 ("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*." (emphases added); PO Resp. 55 ("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

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connections) are a critical, unclaimed feature. None of the claims recite parallel TCP connections.

delivery of HD content over the Internet' because of the continuous playback of the content." (citing Ex. 2039)); Pet Reply 22 (citing Ex. 2039).

As indicated above, Patent Owner emphasizes the Ogdon IPRs and the ITC ALJ's finding (which does not involve the '772 patent) to contend that Patent Owner is entitled to a presumption of nexus. PO Sur-reply 22–24 (citing Ex. 1009, 212; Ogdon '43IPR, Paper 59, 41–59). However, as discussed above, claim 1 lacks the parallel TCP connections for streamlets that Patent Owner's evidence of secondary considerations, expert testimony, and arguments in the Ogdon FWDs, the Board's findings in the Ogdon FWDs, all show are critical unclaimed features. This is a fatal flaw in Patent Owner's evidence of coextensiveness.

That is, as indicated above, Patent Owner's own documents attribute the success of MOVE's streaming technology to parallel retrieval of streamlets across multiple TCP connections. Ex. 2021, 6 ("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. 2039. The plain language of these documents, which Patent Owner cites to show a nexus and/or objective indicia of non-obviousness (*see* PO Resp. 51, 56–57), 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 and arguing critical unclaimed features exist, 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 of the ALJ in 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, 211–13. 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 parallel TCP connections for streamlets in the MOVE Media Player. *See id.* In particular, it is not clear if Patent Owner argued the feature is critical in Ogdon FWDs, which were filed after the ALJ's decision. *Compare id.* at Title Page (Sept. 9, 2022 decision), *with* the Ogdon IPRs (April 14, 2025 decisions).

Patent Owner also cites an analysis by the ALJ of how "Sling TV Apps" allegedly practices claim 1. PO Resp. 48–49 (citing Ex. 1009, 101–12). However, this is insufficient to establish a presumption nexus. Patent Owner fails to point the Board to evidence showing that ALJ considered whether the "Sling TV Apps" were coextensive with claim 1. *See id.* at 50 (citing Ex. 1009, 101–112). In other words, the ALJ merely found that "the Sling Fire App" is an "article[] protected by the patent." Ex. 1009, 113.

Turning to direct nexus, Patent Owner argues that the asserted "objective indicia are the 'direct result of the unique characteristics of the claimed invention.'" PO Resp. 51 (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'." *Id.* Citing Dr. Jeffay, Patent Owner also argues that

> the 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 52 (internal quotation omitted) (citing Ex. 2141 ¶¶ 190, 213, 215, 265). Patent Owner primarily asserts a direct nexus between its evidence of secondary considerations involving ABR technology and "continuous playback" as claimed. *See id.* at 51–65.

Petitioner argues that there is no direct nexus because of the unclaimed features noted above and also because ABR streaming was already known. Pet. Reply 23–24 (citing Ogdon '43IPR, Paper 59, 48 ("We agree with Petitioner that 'actively adjusting . . . video quality to the bandwidth available' and 'delivering "pieces of content progressively"' were taught by the prior art, namely, Ogdon and Leaning."); Pet. 19–40 (Leaning)); *supra* II.E.1.a–b.i (finding claim 1 reads on Leaning). Petitioner notes that the Board in the Ogdon '43IPR previously determined that "actively adjusting . . . video quality" was in the prior art. *See* Pet. Reply 23–24 (citing Ogdon '43IPR, Paper 59, 48). Petitioner further contends that Patent Owner asserts that ABR results in "continuous playback," but ABR is likewise in the prior art. *Id.* (citing Ex. 2022, 11, 23; Ex. 2077, 1; Ex. 2036, 2; Ex. 2039, 1; Ex. 2046, 1; Ex. 1026 § XVII.A.5); *see also supra*

§ II.E.A.1.a–b (finding claim 1 reads on Leaning); Pet. 19–41 (reading claim 1 on Leaning).

In its Sur-reply, Patent Owner argues that "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 claim 1. *See supra* § II.E.1.a–b (finding claim 1 reads on Leaning); Pet. 19–41 (reading Leaning on clam 1). This undermines Patent Owner's assertions about direct nexus. *See Kao*, 639 F.3d at 1068–69.

Moreover, as found above, the MOVE systems touted continuous playback features result at least partly, if not primarily, from multiple parallel TCP streamlet connections. The '772 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, 10:11–14. In contrast,

> [s]plitting *the streamlet 212 into smaller pieces or portions beneficially allows for an increased efficiency potential, and also 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 9:30–38. In addition, "[*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 10:19–22 (emphasis added). "Virtual 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 10:25–29.

In contrast, claim 1 recites "a plurality of . . . TCP[] connections," but it does not require this disclosed "innovation" of parallel TCP connections for streamlets as described in the specification and in Patent Owner's evidence describing successful MOVE products. *See MeadWestVaco Corp.*, 731 F.3d at 1264 (holding it is error to consider "secondary considerations of non-obvious [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.,* 544 F.3d at 1316)); *In re Law*, 303 F.2d at 954 ("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.").

The specification as summarized above indicates delays over single TCP connections result in 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 asserted objective indicia of nonobviousness are the result either of what was already in the prior art via ABR technology or the disclosed unclaimed "innovation" of ABR technology that includes parallel TCP connections for streamlets, instead of the "direct result of the unique characteristics of the claimed invention." *See Fox Factory*, 944 F.3d at 1373–74.

Consequently, Patent Owner's objective indicia of nonobviousness are the result either of 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 below Patent Owner's evidence alleging 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.

iv. Long-Felt Need/Failure of Others

Patent Owner contends that "[t]he claimed invention achieved continuous playback of streaming video when others could not." PO Resp. 54 (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). In particular, 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 other high quality video streaming content. PO Resp. 55–61. 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 58 (citing Ex. 2020 ¶¶ 7–10; Ex. 2141 ¶¶ 225–229; Ex. 2034; Ex. 2036; Ex. 2041; Ex. 2103; Ex. 2033; Ex. 2084; Ex. 2053)).

In particular, Patent Owner cites evidence of then-existing video streaming failures due to "buffering, hesitancy, delays, stalling, freezing, and unresponsiveness." PO Resp. 56 (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 59–60 (citing Ex. 2036, 2; Exs. 2043–46; Ex. 2046; 2141 ¶¶ 227–228, 234–235; Ex. 2062, 2141). Petitioner relies on the same arguments disputing nexus discussed above and also asserts that Patent Owner relies on differences in degree, not in kind. *See* Pet. Reply 19–23.

In general, as summarized above, Patent Owner posits a long-felt need for continuous playback of streaming video and Patent Owner cites various articles in support of that theory. *See* PO Resp. 52–59; PO Sur-reply 26. 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. 2006 ¶¶ 220, 222; Ex. 2034, 1; Ex. 2038, 1; Ex. 2044; PO Resp. 60 (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 undermines the notion that there was a long-felt but unmet need. In addition, as found above, the prior art already taught continuous streaming video (*see supra* § II.E.1.a–b), which undermines any nexus between the alleged long-felt need and the claimed invention. *See Kao*, 639 F.3d at 1068–69. In addition, the evidence is not commensurate in scope with claim 1, because claim 1 does 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. 58 (citing Ex. 2034, 1).

Accordingly, we accord Patent Owner's evidence little to no weight.

v. 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. 61 (citing Ex. 2032; Ex. 2037; Ex. 2141 ¶¶ 230–237); *see also* PO Sur-reply 26 (similar argument). In particular, Patent Owner puts forth certain articles expressing surprise at how well the MOVE Media Player performed at the time of its introduction. PO Resp. 61–62 (citing Exs. 2032, 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 62 (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); *see also id.* at 53 (similar assertion without citation).

"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 testimony (Ex. 2141 ¶ 230), which in turn references additional allusions to continuous playback. *See id.* ¶¶ 232, 234 (citing Exs. 2022, 2048, 2054). Of these, only Exhibit 2048 arguably relates to continuous playback via its mention of "fluidity of playback." Ex. 2048, 1. But Exhibit 2048 credits the use of streamlets, traditional servers, and an adaptive bitrate protocol as keys to the MOVE technology's ability to improve "quality of experience" for online media delivery. *Id.* It also 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." 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 tum lowers streaming costs." *Id.*

These unclaimed features, including the unclaimed "distribut[ed]" "smaller pieces" of "streamlets" from "traditional servers," tends to undermine Patent Owner's assertion of a direct nexus to the "continuous playback" limitation. *See* Pet. Reply 22 (asserting the plug-in feature, which manages delivery and renders the stream, is critical and unclaimed); PO Resp. 62 ("ABC's online player was called '[o]ne of the most spectacular' because it relied on MOVE's ABR technology, which breaks the video up into 'streamlets' to achieve a higher quality picture and continuous playback." (citing Ex. 2082)). In addition, as noted above, continuous streaming of video with ABR control and streamlets was known in the prior art, which further attenuates any such nexus. *See* Pet. Reply 21, 25; *supra* § XII.E.A.1.a–b (finding claim 1 reads on Leaning); Pet. 19–41 (reading claim 1 on Leaning).

For these reasons, we accord Patent Owner's evidence of unexpected results little to no weight.

vi. 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. 63 (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); *see also* PO Sur-reply 27 (similar argument). Patent Owner also cites certain investments made in MOVE Networks as being indicative of commercial success. PO Resp. 64–65. Patent Owner additionally cites evidence of various licenses for its ABR patents as an indicator of nonobviousness. *Id.* at 65 (citing Ex. 2063, 23 n.100; Exs. 2093–2095); *see also* PO Sur-reply 28 (similar argument). 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. PO Resp. 64 (citing Ex. 2125 ¶ 4).

Petitioner relies on the same arguments disputing nexus discussed above. *See* Pet. Reply 23–28; *supra* § II.E.A.1.a–b (finding claim 1 reads on Leaning); Pet. 16–39 (reading claim 1 on Leaning). Petitioner also submits that any success attributed to MOVE Networks as an entity, or to its technology or ABR technology in general, "it is not sufficiently tied to the claimed invention." Pet. Reply 23. Petitioner also asserts that Patent Owner's "evidence of licenses for its ABR streaming patents generally . . . likewise lacks nexus." *Id.* (citing PO Resp. 64–65).

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 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 presentation' as the reason for the success of MOVE's Media-Player." PO Resp. 63 (citing Exs. 2034, 2035). Yet, as discussed above, continuous playback was already known in the prior art. *See* Pet. Reply 21, 25; *supra* § II.E.A.1.a–b (finding claim 1 reads on Leaning); Pet. 16–39 (reading claim 1 on Leaning); Ex. 1022 ¶ 46. It also appears, as discussed above, that much of the long continuous running time is partly due to unclaimed parallel TCP connections for concurrent or simultaneous streamlets (and claim 1 neither requires nor necessarily enables the long continuous playback relied upon for commercial success without multiple TCP parallel streamlet connections). *See* Ex. 1001, 9:38–58 ("By requesting more than one streamlet 212 at a time in a manner referred to as 'parallel retrieval,' or more than one part of a streamlet 212 at a time,

efficiency is raised significantly and latency is virtually eliminated."); 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. 49 (Peloton license), 63 (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 '772 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. 65 (citing Ex. 2125 ¶ 4 (Microsoft declarant stating that Microsoft offered license "MOVE Networks' Patent Application No. 11/673,483 for $10,000")).[22]

The record indicates that the involved parties settled the ITC Investigation as to four related patents, but it does not encompass the '772

[22] This application number corresponds to U.S. Pat. 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.

patent. *See* Exs. 2093–2095; Ex. 1009. Patent Owner does not explain the circumstances surrounding the taking of the license or terms of settlement even with respect to the other ABR patents in the family. *See* PO Resp. 49 (citing Ex. 2141 ¶ 247 (citing Exs. 2093–2095)). Patent Owner states "[t]he Respondents in that ITC Investigation, Peloton, lululemon, and MIRROR, each took a license to the ABR Patents with Peloton paying $75 Million for a license including the patent challenged here." *Id.* (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 also 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.)."

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 Ex. 2093; Ex. 2094; Ex. 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 patents other than the '772 patent). Ex. 1009, Title Page (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.").

Patent Owner does not allege there is a license or settlement agreement with respect to the '772 patent. 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. *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").[23]

In *Ancora*, the court stated that "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." *See Ancora*, 140 F.4th at 1363. Patent Owner does not apprise us of such clear evidence because there is no license for the '772 patent. *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 one hand, Patent Owner does not provide sufficient if any evidence showing that respondents in 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 '772 patent (although that is unknown and unargued).

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

Ancora makes clear that a patentee must "provide adequate evidence that the licenses had a nexus to the patents at issue." *Ancora*, 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 to provide adequate evidence that the licenses had a nexus to the patents at issue."). The license for the '772 patent is not in evidence, so we do not know the extent to which it implicates the '772 patent. Under these circumstances, Patent Owner does not show a nexus between the license and the challenged 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 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.

vii. 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. 66 (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 59 (similar argument that 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 66 (citing Exs. 2042, 2043, 2067).

Petitioner relies on the same arguments disputing nexus discussed above. *See* Pet. Reply 19–24. Petitioner also notes that the "ITC found that [Patent Owner] failed to establish copying" such that Patent Owner fails to show copying by Apple and Microsoft. *Id.* at 24 (citing Ex. 1009, 216).

Patent Owner's alleged evidence of copying related to Apple includes non-disclosure agreements (Exs. 2065, 2066) and David Ericson's 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. 65 (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 claim 1. Still, as discussed above, these aspects of the technology were known in the art (*see supra* § II.E.1.a–b (finding claim 1 reads on Leaning); Pet. 19–41 (reading claim 1 on Leaning); 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. *Iron Grip*, 392 F.3d at 1325. And even though the ITC found the HLS Standard to be "very similar to what MOVE had developed and was using as a proposed standard" (PO

Resp. 66), the ITC did not find copying as Petitioner 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. 64 (citing Exs. 2042, 2043, 2067). Patent Owner's allegations of copying hinge on Microsoft's "Smooth Streaming" extension implementing adaptive bitrate technology. *Id.* (citing Ex. 2042; Ex. 2043; Ex. 2067; Ex. 2141 ¶ 268). Yet Patent Owner does not establish any particular link between "Smooth Streaming" and the claims of the '772 patent other than the use of adaptive bitrate video streaming (*see* Ex. 2067; Ex. 2141 ¶ 268), which was in the prior art. *See supra* § II.E.1.a–b (finding claim 1 reads on Leaning); Pet. 19–41 (reading clam 1 on Leaning). Patent Owner also fails to show "replication of a specific product" by Microsoft. *Iron Grip*, 392 F.3d at 1325.

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

viii. 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. 64–65 (citing Exs. 2033, 2034, 2036, 2048, 2050, 2051). As discussed above, other evidence touts the ability of the MOVE Media Player to create streamlets by breaking up the video into bits. *Id.* at 58, 60 (citing Ex. 2034;

Ex. 2036, 2; Ex. 2050). As also discussed above, however, the concepts of adaptive rate streaming and dividing the data stream into slices were already in the prior art. *See supra* § II.D.1.a–b, c.iii–vii; Pet. 16–39. Further, as also discussed above, the use of standard web servers and streamlets are unclaimed feature. *See supra* § II.D.1.c.iii–vii. 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. 68–69 (citing Ex. 2020 ¶ 18; Ex. 2023; Ex. 2141 ¶ 280; Ex. 2100 ¶ 21). Yet SlingTV's own press release states that this award relates to SlingTV's "over-the-top television service" that was "launched February 9, 2015" (Ex. 2023), which was many years after the priority date of the '772 patent. As indicated above, Patent Owner does not show a nexus between claim 1 of the '772 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. 68.

Patent Owner also puts forth evidence of other awards: AlwaysOn's OnHollywood 100 (Exs. 2026, 2027), AlwaysOn's OnMedia 100 (Ex. 2028), Red Herring's Global 100 (Ex. 2029), and TechCrunchies (Ex. 2030).[24] *See* PO Resp. 68–69 (citing Ex. 2010 ¶ 34; Ex. 2141 ¶¶ 278–280).

[24] Patent Owner also cites a "Red Herring 100" award (PO Resp. 68), but Patent Owner does not direct us to evidence of such an award in the record aside from Dr. Jeffay's testimony. *See* Ex. 2141 ¶ 279.

None of these awards relates specifically to the technology claimed in the '772 patent. Indeed, all of 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. 69 (citing Exs. 2041, 2054, 2130). It is not clear how any of these citations show 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* § II.E.1.a–b, c.iii–vii.

Finally, Patent Owner cites the statements of certain "users" of MOVE's technology. PO Resp. 67 (citing Ex. 2036; Ex. 2141 ¶¶ 272, 273, 275). The evidence backing these statements appears to be certain blog posts from the internet. *See, e.g.*, Exs. 2033, 2036, 2080.[25] 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

[25] These are updated citations to exhibits referenced in Dr. Jeffay's declaration to reflect the correct Exhibit numbers.

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 (*see supra* § II.E.1c.iii), we accord this evidence little or no weight.

ix. BT's Alleged Failure to Commercialize Leaning's Teachings

Patent Owner argues that "the most direct and probative indicium of non-obviousness may be BT's [British Telecom's] failure to commercialize, license, or further develop the video teachings of Leaning, despite having had every incentive to do so in the early 2000s."[26] PO Resp. 70 (citing Ex. 1004, 1; Ex. 2135). Patent Owner cites 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 commercialized. *Id.* at 71 (citing Ex. 2141 ¶ 8).[27] Mr. Ratcliffe also allegedly "confirmed with the Leaning inventors' direct manager that the video teachings were never commercialized." *Id.* (emphasis omitted) (citing Ex. 2141 ¶ 8).[28] Patent Owner argues that "BT had every incentive to commercialize and develop an ABR [adaptive bitrate] streaming solution," so "BT's failure to

[26] "British Telecommunications Public Limited Company" is listed as the "Applicant" of the Leaning patent application. Ex. 1004, code (71).
[27] The cited material appears to be an amalgamation of testimony from paragraphs 10 and 11 of Mr. Ratcliffe's declaration.
[28] Same as note 22 (incorrect citation).

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 25 (citing *Samsung Electronics Co., Ltd. v. Lynk Labs., Inc.*, 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.* (citing Ex. 1035 (Ratcliffe deposition) 73:16–74:15, 126:11–127:23, 139:11–140:3, 158:19–159:8). Petitioner also questions the thoroughness of Mr. Ratcliffe's search efforts because Mr. Ratcliffe testified that 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 such as video rate-switching. *Id.* at 25–26 (citing Ex. 1026 ¶¶ 217–219; Exs. 1036, 1037).[29]

In its Sur-reply, Patent Owner disputes that FastNets employed Leanings'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).[30]

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

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

reference somehow may be treated as an indicium of nonobviousness. And even if such a theory were viable, the record does not support it. In particular, 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' licences* that BT has entered into with third parties in the normal course of BT's own patent commercialization efforts" (emphasis added)). Furthermore, 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." PO Resp. 71. In addition, the scope of the evidence presented here—Mr. Ratcliffe's testimony based on a limited search guided 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.

x. Summary Regarding Secondary Considerations of Nonobviousness

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/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 more than a weak 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.

d. Conclusion Regarding Claim 1

Based on the foregoing and the full record, including secondary considerations of nonobviousness, we determine that Petitioner shows by a preponderance of evidence that claim 1 is unpatentable. Petitioner persuasively shows that Leaning teaches all limitations of claim 1. Leaning's disclosed ABR video system using streamlets over TCP connections is remarkably similar to the claimed invention. Considering all the *Graham* factors, we find that Petitioner's persuasive obviousness showing far outweighs Patent Owner's evidence of secondary considerations of nonobviousness.

2. Claims 2 and 9

Petitioner contends that Leaning teaches claims 2 and 9. Pet. 41, 47–48. Claim 2 recites "[t]he method of claim 1, wherein said requesting the plurality of sequential ones of the files includes requesting sub-parts of the files over different ones of the plurality of TCP connections, and wherein said presenting includes reassembling the files from the received sub-parts." Claim 9 recites "[t]he method of claim 1, wherein said automatically requesting includes requesting sub-parts of the files over different ones of the plurality of TCP connections, and wherein said presenting includes reassembling the files from the received sub-parts."

Petitioner relies on its showing for limitation 1B (*supra* § II.E.1.b.ii). Pet. 41, 47–48. Patent Owner does not address Petitioner's showing other than as discussed above in connection with limitation 1B. *See* PO Resp. 36–40. The record supports Petitioner's showing. *See* Pet. 31–33, 41 (arguing using multiple TCP connections would have been obvious because this

"improves reliability in situations where one connection fails by retrieving other subparts over other connections and retrieving more of file more quickly" (citing Ex. 1003 ¶ 94), 47–48.

For the reasons above, and after a review of the record, including secondary considerations, we determine that Petitioner shows by a preponderance of evidence that claims 2 and 9 are unpatentable.

3. Claim 6

Claim 6 depends from claim 1 and follows:

> The method of claim 1**,** wherein said requesting the plurality of sequential one of the files includes requesting the files from a low quality one of the different copies to enable instant playback of the video, and wherein said automatically requesting includes upshifting to a higher quality one of the different copies.

Citing its showing for limitations 1C–1E, Petitioner contends that

> Leaning teaches that the media player (player program) is configured to initially request low quality files (*e.g.*, requesting first subfile at 024k) to enable instant playback of the content file, and subsequent upshifts according to the performance factor (*e.g.*, upshifting to 032k when "measured rate" exceeds 32 kbit/s for a set period of time).

Pet. 45 (citing Ex 1004, [8:6–16] ("It then **begins to request** the audio sub-files as described earlier, **from the first-mentioned 'rate'** directory in the index file - **viz. 024k_11_s**"; "The process from then on is that the player program **measures the actual data rate** being received from the server, averaged over a period of time"; "The player maintains two stored parameters which indicate, respectively, the current rate, and the **measured rate**."); Ex. 1003 ¶ 93).

Patent Owner contends that "[c]laim 1 recites two 'requesting' steps: an initial step of 'requesting . . . a plurality of sequential ones of the files" and a subsequent step of "requesting . . . subsequent portions . . . of the files." PO Resp. 40. Patent Owner argues that "[c]laim 6 is directed to the initial request." *Id.*

Based on this construction, Patent Owner argues that "Leaning fails to disclose 'initially request[ing] a sub-file of a low bit rate in the first instance" because a bit rate of 24kbits/s is "the second highest option." PO Resp. 41. Patent Owner further argues that "Leaning requires filling its buffer past the playout time Tp, and thus does not disclose 'instant playback.'" *Id.* Patent Owner also argues Leaning teaches "that requesting higher quality—i.e., larger—sub-files results in 'extra delay' when starting playback." *Id.* at 41 (quoting Ex. 1004, 12:31–33 ("[E]xcessively large sub-files are disadvantageous in requiring a larger buffer and in causing ***extra delay*** when starting play." (emphasis in original)). Therefore, Patent Owner contends that "Leaning describes initially requesting ***high*** quality files, not '***low*** quality files,' which increases delays and makes 'instant playback' impossible." *Id.*

These arguments are unavailing. As Petitioner shows, "Leaning discloses that 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, 12:34–35; Ex. 1026 ¶¶ 49, 75, 135). Petitioner explains "Leaning's playback is 'instant' within the constraints of computer networking." *Id.* (citing Ex. 1026 ¶¶ 49, 75, 135). As Petitioner also argues, the '772 patent does not describe "instant playback" in a quantitative or specific manner that distinguishes over

Leaning. *See id.* The '772 patent and claim 6 do not preclude the time taken to load and decode small sub-files into buffer memory. *See* Ex. 1007, 7:60–63 ("Once the streamlets 212 have been received and processed, the client module 114 may request streamlets 212 using HTTP from the web server 116."), 9:17–20 ("In one embodiment, the network controller module 406 opens a TCP/IP connection to the web server 116 and generates a standard HTTP GET request for the requested streamlet 212."). Claim 6 does not specify any file size (let alone a streamlet). In addition, "wherein said requesting the plurality of sequential one of the files includes requesting the files from a low quality one of the different copies to enable instant playback of the video" is broad enough to include loading the files locally into the client to enable instant playback at a later time (after such loading).

Leaning implies that "extra delays" in "excessively large sub-files" are relative to smaller sub-files when starting play. *See* Ex. 1004, 12:31–33 (stating "excessively 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"). As Petitioner argues, "[t]his passage of Leaning has nothing to do with bitrate, but rather relates to the *length* in seconds of a sub-file." Pet. Reply 15 (citing Ex. 1026 ¶ 137).

Therefore, as Petitioner also argues, using one or more small sub-files that each or together exceed Tp satisfy the "instant playback" limitation of claim 6. *See* Pet. Reply 15 (arguing "Leaning explicitly considered instant playback when 'starting play' with respect to sub-file length" where Leaning teaches "excessively short or large sub-files should be avoided, recommending 'sub-file size of between 30% and 130% of the playout time'" (citing Ex. 1026 ¶ 137; quoting Ex. 1004, 12:27–34)); Ex. 1026 ¶ 72

("[I]f the sub-file length was 2 seconds with a playout time of 3 seconds, two sub-files would be initially requested and decoded before playout begins, with up to 4 seconds of video buffered"); Ex. 1004, 12:31–33 (stating "sub-files of between 30% and 130% of the playout time, or preferably around half the playout time (as in the examples above), is . . . satisfactory");

For the reasons outlined above, Petitioner's showing is persuasive. Based on the foregoing and the full record, including secondary considerations, we determine that Petitioner shows by a preponderance of evidence that claim 6 is unpatentable.

4. Claim 8

Claim 8 recites "[t]he method of claim 1, wherein said presenting comprises sequentially arranging the requested files from the different copies in the order of ascending playback time for playback with the media player on the end user station."

To address claim 8, Petitioner relies on its showing for limitations 1F (requesting, receiving, and displaying ordered series of presentation segments, including collections of segments at different quality levels), 1A2 (different copies encoded at different bit rates), and 1C (retrieving collections of segments at different quality levels). Pet. 47 (citing Ex. 1003 ¶ 103); *see also id.* at 21–23, 35–37, 40.

In particular with respect to limitation 1F, Petitioner contends that "Leaning teaches presenting the video by decoding and playing back the subfiles of the video with the player program on the terminal in order of ascending start time." Pet. 40–41 (citing Ex. 1004, 1:13–28, 4:4–21, 5:23–6:2, 12:16–18, 14:6–11, claim 1 ("means for playing the contents of the buffer"); Ex. 1003 ¶ 93).

Patent Owner argues that "Leaning does not disclose or suggest performing this 'sequentially arranging' step on its user terminal—i.e., its alleged analog to the claimed 'end user station.'" PO Resp. 42. Patent Owner argues that the '772 patent specification describes requesting a plurality of streamlets simultaneously. *Id.* (citing Ex. 1001, 9:23–26, 11:42–44). Therefore, according to Patent Owner, the '772 patent "illustrates the need for 'the staging module **409** [to] then ***arrange***[] **612** the streamlets ***into the proper order***'—specifically, 'in order of ascending playback time.'" *Id.* (quoting Ex. 1004, 8:41–42 (emphasis in original), citing 11:52–55)). Patent Owner contends that "Leaning, on the other hand, does not contemplate a need to 'sequentially arrang[e]' sub-files on its user terminal because Leaning does not disclose or suggest requesting a 'plurality' of sub-files from the buffer or over the internet." *Id.*

Patent Owner also argues that "Leaning only disclosing its sub-files being stored and played back in the order in which they are received." PO Resp. 43. According to Patent Owner, Leaning's subfiles "already are arranged in the correct order because they are requested and received in that order." *Id.* at 44.

These arguments are unavailing. As Petitioner argues, "Leaning arranges sub-files into the audio buffer in the order of ascending playback time." Pet. Reply 16 (citing Ex. 1004, 5:15–6:3). As Petitioner also argues, Patent Owner "read[s] limitations from the ['772 patent] specification into the claims, suggesting the claim requires that sub-files are received out of order or requiring a staging module." *Id.* (citing PO Resp. 42–43).

That is, "nothing in the claim recites changing the order in which sub-files are received, nor does it prohibit files from being received in ascending

order." Pet. Reply 16. Petitioner notes that "inventor, Drew Major, testified that his invention can be used by 'a client request[ing] streamlets individually, one at a time, in order of ascending playout time[.]'" *Id.* (quoting Ex. 1032 (Major Depo.), 65:8–14) (alterations in original)).

Petitioner also contends that Patent Owner "mischaracterize[es] . . . Leaning, asserting 'there is no expectation that a sub-file will be followed by a sub-file other than that which immediately follows it in the original sequence.'" Pet. Reply 16 (quoting PO Resp. 44 (citing Ex. 1004, 12:9–11)). As Petitioner argues and as found above, Leaning's cited "passage relates to how a content file should be partitioned when there is no rate-switching and has nothing to do with arranging files at the decoder." *Id.* (citing Ex. 1026 § XI). That is, the passage states "*if* (as in the first version described above), there is no expectation that a sub-file will be followed by a sub-file other than that which immediately follows it in the original sequence, then it matters little where the boundaries between the sub-files are located." Ex. 1004, 12:9–11 (emphasis added). Contrary to Patent Owner's arguments, the passage does indicate there is an expectation that sub-files at Leaning's buffer will be arranged in order. And, as Petitioner also argues, claim 8 does not require out-of-order reception. Pet. Reply 16.

For the reasons outlined above, Petitioner's showing is persuasive. Based on the foregoing and the full record, including secondary considerations, we determine that Petitioner shows by a preponderance of evidence that claim 8 is unpatentable.

6. Claims 3–5, 7, and 10–21

Claims 3–5, 7, and 10–21 depend directly or indirectly from claim 1. Petitioner provides persuasive rationale and citations to Leaning with

support by Dr. Houh to show the obviousness of claims 3–5, 7, and 10–21. Pet. 41–59. Patent Owner does not challenge this showing. *See generally* PO Resp.

Based on the foregoing and the full record, including secondary considerations, we determine that Petitioner shows by a preponderance of evidence that claims 3–5, 7, and 10–21 are unpatentable.

F. Analysis of Claims 2 and 9, Alleged Obviousness over Leaning and Gamble

Petitioner contends that the combined teachings of Leaning and Gamble render claims 2 and 9 obvious. Pet. 59–61.

Claim 2 recites "[t]he method of claim 1, wherein said requesting the plurality of sequential ones of the files includes requesting sub-parts of the files over different ones of the plurality of TCP connections, and wherein said presenting includes reassembling the files from the received sub-parts."

Petitioner relies on its showing for limitation 1B (*supra* § II.E.1.b.ii), and further on the added teachings of Gamble to address claim 2. Pet. 58–59. In addition, Petitioner relies on Gamble's multiple TCP teachings as follows:

> Gamble teaches sub-parts of a plurality of files that are requested over a plurality of TCP connections and reassembled. Gamble discloses a network application 112 operating on a client 106 that creates a receive buffer 706 to store a plurality of N segments (here, N=4) from stream files 7061 through 7064 received over N parallel connections from server 108. EX1020, ¶¶ 50–51. The receive buffer 706 includes multiple sub-buffers B1 through B4 to store N(=4) segments of a data file 702A that are respectively streamed out of stream files 7061 through 7064. *Id.* ¶ 51. The segments in the receive buffer 706 are ordered into a data file 702B to match the order in data file 702A, and the process

> continues until all segments have been received and ordered. *Id.*, ¶ 52; *see also* ¶ 40. Gamble explains that the TCP layer 312 of the network connection operating on the client 106 acknowledges and reorders packets and can send packets on multiple or parallel connections. *Id.* ¶ 37.

Id. at 59–60 (citing Ex. 1003 ¶ 129).

Petitioner contends that it would have been obvious "to configure Leaning's apparatus to request sub-parts of the files (subfiles) over different TCP connections and reassemble the files from the received subparts, such as taught by Gamble," in order to "improve[] reliability in situations where one connection fails by retrieving other subparts over other connections and retrieving more file data more quickly." Pet. 60 (citing Ex. 1003 ¶ 130). Petitioner also contends that "[a] POSITA . . . would have understood that [the modification] takes advantage of available bandwidth by parallelizing retrieval of a segment to increase throughput where an individual TCP connection's maximum throughput is the bottleneck." *Id.* (citing Ex. 1003 ¶ 130). Petitioner submits that "a POSITA would have had a reasonable expectation of success with such a modification because the TCP protocol allows for multiple connections, and utilizing multiple connections to request and retrieve different parts of a single file was well known, as exemplified by Gamble." *Id.* at 60–61.

Patent Owner notes that "Gamble is . . . directed to 'data processing systems for transferring large data files over parallel connections.'" PO Resp. 45 (quoting Ex. 1020 ¶ 1). Patent Owner argues that "Gamble fails to disclose or suggest 'receiving' requests over multiple TCP connections, as claimed," and Gamble's "***transmitting*** client . . . establishes 'parallel

connections' for sending each segment to the receiving client (via that intermediate server). . . . ***without receiving any segment requests*** from the ***receiving*** client." *Id.* at 46 (citing Ex. 1020 ¶¶ 21, 39; Ex. 2141 ¶ 175).

Gamble does not support this argument. As Petitioner argues, Gamble's "client system . . . initiate[s] the standard TCP connection." Pet. Reply 17 (quoting Ex. 1020 ¶ 39; citing Ex. 1026 § XV; Ex. 1020 ¶¶ 38–39). Then, after this initiation by the client, Petitioner shows, Gamble's "server application . . . can accept these connection requests and process all N per-connection data transfers independently and concurrently." *Id.* (citing Ex. 1026 ¶ 38 ("server 108 can listen for TCP connection requests"), ¶ 39, § XV)).

Patent Owner also argues that "Petitioner fails to account for Gamble's 'server 108' . . . and how or why a POSITA would have incorporated that critical element of Gamble into Leaning's system." PO Resp. 47 (citing Ex. 2141 ¶ 176). This argument is unavailing. As Petitioner argues, Leaning teaches requesting sub-parts of files by a media player using TCP, and Gamble's "server 108 refers to any generic computing device." *See* Pet. Reply 18 (citing Ex. 1020 ¶ 26). Therefore, Petitioner shows that modifying Leaning's TCP functionality based on Gamble's TCP teachings so that Leaning's server accepts standard TCP connection requests for sub-parts over multiple standard TCP connections from Leaning's media player would have been obvious in order to improve reliability and take advantage of available bandwidth by parallelizing retrieval of a segment to increase throughput where an individual TCP connection's maximum throughput is the bottleneck. *See* Pet. 58–59.

Patent Owner's arguments largely attack Gamble individually without addressing Petitioner's reliance on the combined teachings of Leaning and Gamble. *See* Pet. Reply 18–19 ("Obviousness does not require physical combinability and POSITAs would have understood how to implement [the TCP] teachings in Leaning." (citing *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985); Ex. 1026 § XV)). In a similar fashion, Patent Owner's Sur-reply arguments focus on Gamble's client server architecture and fail to undermine the showing in the Petition based on the combined teachings of Leaning and Gamble. *See* PO Sur-reply 21.

In summary, Petitioner persuasively shows that "[t]he combination relies on Gamble's teachings of requesting sub-parts of files over different TCP connections and reassembling the files from the different subparts" so that the combination renders claim 2 obvious. *See* Pet. Reply 18 (citing Pet. 59–60; Ex. 1026 ¶¶ 183–184).

Petitioner persuasively relies on its showing above with respect claim 2 to address claim 9. Pet. 61. Patent Owner argues clams 2 and 9 together. PO Resp. 44–49.

For the reasons above, and after a review of the record, including secondary considerations, we determine that Petitioner we determine that Petitioner shows by a preponderance of evidence that claims 2 and 9 are unpatentable.

III. MOTION TO STRIKE

Patent Owner filed a Motion to Strike (Paper 61, "Motion") portions of Petitioner's Reply, Petitioner filed an Opposition to Patent Owner's Motion to Strike (Paper 69, "Opposition" or "Opp."), and Patent Owner file

a Reply in Support of its Motion to Strike (Paper 71, "Strike Sur-reply"). Some of our findings above address similar arguments that Patent Owner advances in its Motion.

A. Petitioner's Claim Construction

Patent Owner moves to strike Petitioner's Reply portions that rely on Petitioner's construction of "continuous playback" as "aspirational, not limiting, language." Motion 1 (quoting Pet. Reply 1) (emphasis omitted). This is moot. We do not rely on Petitioner's "aspirational" interpretation of "continuous playback."

B. "Clear Buffer" Modifications of Leaning

Patent Owner argues that "Petitioner tacitly admits its Petition failed to address the 'continuous playback' recited in limitation 1[E] by pointing, in its Reply, to arguments for entirely different limitations—specifically, limitations 1[C] and 1[D]." Motion 5 (citing Pet. Reply 3). Based on this argument, Patent Owner argues that Petitioner relies on new sections of Leaning "to develop an entirely new obviousness modification of Leaning (where Leaning's 'Clear Buffer' step is 'not necessary')." *Id.* at 6.

These arguments are unavailing. As set forth above, the Petition relies on its showing for claim 1 as a whole, putting Patent Owner on notice as to Leaning's preference for avoiding interruptions during rate shifts. *See* Pet. 38 ("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' (*i.e.*, whether the buffer is completely empty) . . . .") (quoting Ex. 1004, 15:3–8)). Petitioner also quotes Leaning as follows:

> "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**."

Id. at 25 (quoting Ex. 1004, 12:6–20 (emphasis in original)), 26 (same quote); *see also id.* at 29 (asserting Leaning discloses "continuous playback" as limitation 1E requires).

As Petitioner argues, Petitioner does not modify Leaning in the Petition or in the Reply; rather, it relies on Leaning's alternative embodiment or generic sub-file teachings in Leaning, and the Reply responds to arguments in the Patent Owner Response that contend Leaning's system "results in interrupted playback and does not meet the 'continuous playback' limitation." *See* Opp. 5–7 (citing PO Resp. 25–26); *supra* § II.E.1.b.1. Moreover, Leaning's clear buffer teachings are largely irrelevant, because Petitioner relies on Leaning's video teachings, which do not require clearing the buffer, as outlined above.

C. Playout Time (Tp) and Decoding

Patent Owner alleges that Petitioner improperly presents new theories to address temporal discontinuities. Motion 7–9. Patent Owner argues that "Petitioner's new Tp 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 7–8 (citing Pet. Reply 5). Patent Owner presents other arguments regarding alleged inconsistencies in Petitioner's showing. *See id.*

These arguments are unavailing. Leaning's Tp is largely irrelevant to Petitioner's showing and our findings with respect to claim 1. Patent Owner does not argue specifically that Petitioner's reliance on varying Tp values with respect to the dependent claims is improper. *See generally* Motion. In any event, Petitioner relies on Leaning's Tp showings in general and is not limited to any set Tp in the Petition, and the Reply is in response to Patent Owner's new claim construction theory, set forth in its Response, as to the "continuous playback" limitation. *See* Opp. 7–8; Pet. 25–26 (relying on Leaning's sub-files in general and characterizing Leaning's "rate switching" as follows: "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" (quoting Ex. 1004, 12:6–20 (alteration added)), 29–30 (relying on Leaning's "subfiles" in general), 31 (referring to Leaning's "example" of Tp set at 10 seconds and also quoting Leaning's system as "repeat[ing] this process until the contents of the buffer reach or exceed the playout time Tp" with no limitation on subfile time duration relative to Tp (quoting Ex. 1004, 5:6–32)), 39–40 (relying on Leaning's flowchart, which refers to "If Buffer Fullness>Tp seconds" in general without limitation as to the time duration of Tp or subfiles).

Patent Owner also fails to show how Petitioner's reliance on Leaning's Tp teachings relates to Petitioner's showing regarding continuous playback *after* rate-shifting. In any event, as found above and as Petitioner argues, "the Petition was not limited to a particular Tp." Opp. 8 ("Leaning states, unequivocally and in direct contradiction to PO's position, that a sub-

file can be 'between 30% and 130% of the playout time.'" (quoting Ex. 1004, 12:27–34)).

To the extent we analyze Leaning's Tp teachings above, it is to address the parties' positions in the context of Leaning's overall teachings and the "continuous playback" issues Patent Owner raises in its Response. As Patent Owner recognizes, the Petition relies on Leaning's disclosure that Leaning continually fills and decodes the buffer with streamlets, regardless of the value of Tp: "Leaning's 'player program . . . requests, receives, decodes and stores [a] second subfile" and "repeats this process until the contents of the buffer reach or exceed . . . Tp . . . ." *See* Motion 8 (quoting Pet. 30); Pet. 31(similarly explaining that Leaning's system continually requests, receives, and decodes subfiles until "'file not found error' is returned" (citing Ex. 1004, 6:27–7:2, 8:6–16)).

Patent Owner argues that Petitioner provides an "unexpected" "argument" that "executing the 'Clear Buffer' command would result in the contents of the buffer being read (i.e., 'decoded' and 'play[ed] until it empties'), rather than being cleared (i.e., 'emptied, flushed, erased, etc.')." Motion 9. Patent Owner presents other arguments related to Leaning's audio teachings and Dr. Houh's testimony about clearing the buffer with respect to audio during his deposition. *See id.*

These arguments are unavailing. As explained above, Petitioner's primary theory is that Leaning does not require a buffer clear. To the extent Petitioner relies on Dr. Houh's testimony about letting the buffer play out pursuant to a rate shift, Petitioner merely responds to Patent Owner's arguments asserting interruptions. *Compare* Pet. Reply 5 (citing PO Resp. 15–17, 23), *with* PO Resp. 22. It is not necessary to decide if letting the

buffer play out after a rate shift then resetting the buffer to receive new rate shift sub-files also satisfies the "continuous playback" limitation.[31] *See* Opp. 8–9.

D. Encoding

Patent Owner argues that "[f]or 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***." Motion 9 (citing Pet. Reply 6). Patent Owner also alleges Petitioner uses a new file format, JPEG 2000, and other video formats that require special coding techniques and modifications of Leaning. *See id.*

These arguments are moot. We do not rely on JPEG2000 or any special video coding techniques not disclosed in Leaning and relied upon by Petitioner. Moreover, as set forth above, Petitioner only relies on JPEG2000 and video encoding teachings in Leaning in reply to Patent Owner's new claim construction theory and unavailing mistracking arguments set forth in its Response, arising from the "continuous playback" limitation. *See* Opp. 9–10. As explained above, Petitioner shows that Leaning teaches video for formats in the scope of claim 1 that do not require any special encoding techniques or modifications to Leaning. *Supra* § II.E.1.b.i.

E. Summary on Motion to Strike

For the foregoing reasons, we determine that the Motion is partly moot and in the remaining part, Patent Owner fails to meet its burden to show that Petitioner improperly switched its theories in the Reply.

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[31] This raises a different claim construction issue that is unnecessary to decide.

F. Order on Motion to Strike

The Motion is *dismissed* in part and *denied* in remaining parts.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has established by a preponderance of the evidence that claims 1–21 of the '772 patent are unpatentable. In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–16	103	Leaning	1–21	
9, 11	103	Leaning, Gamble	2, 9	
Overall Outcome			1–21	

V. ORDER

Accordingly, it is hereby

ORDERED that Petitioner met its burden of showing that claims 1–21 of the '772 patent are unpatentable;

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

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

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FUBOTV MEDIA INC., YANKA INDUSTRIES, INC.,
WEBGROUP CZECH REPUBLIC, A.S., and NKL ASSOCIATES, S.R.O.,
Petitioner,[32]

v.

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

IPR2024-00919
Patent 8,868,772 B2

Before THU A. DANG, KARL D. EASTHOM, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

HUDALLA, *Administrative Patent Judge*, concurring-in-part and dissenting-in-part.

I respectfully dissent from my colleagues' conclusion as to claims 1, 3–8, and 10–21. I concur with my colleagues' conclusion as to claims 2 and 9, but I come to that conclusion in a different manner than my colleagues.

Regarding the Leaning obviousness ground, I agree with Patent Owner (PO Resp. 36–40) that Leaning does not teach or suggest the use of

[32] Webgroup Czech Republic, A.S. and NKL Associates, S.R.O. filed a petition and motion for joinder in IPR2025-00347 and the Board joined them as a party to IPR2024-00918.

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. *See, e.g.*, Pet. 31–33. 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 claims 1–21 would have been obvious over Leaning.

Notwithstanding, I agree with my colleagues' finding that Petitioner's proposed combination of Leaning and Gamble teaches all limitations of claims 2 and 9. I find that the added analysis for these claims based on Gamble overcomes the deficiencies in the other ground, including those of the base claim from which they depend. I also differ from my colleagues in how I view 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 '772 patent. Indeed, Petitioner does not argue as much, and all challenged claims at least recite 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 21–22) 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. 51–52 (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 2 and 9 would have been obvious over the combination of Leaning and Gamble.

Director_PTABDecision_Review@uspto.gov
571.272.7822

Paper 90
Date: March 17, 2026

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

FUBOTV MEDIA LLC and YANKA INDUSTRIES, INC.,
WEBGROUP CZECH REPUBLIC, A.S., and NKL ASSOCIATES, S.R.O..,
Petitioner,[1]

v.

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

IPR2024-00918 (Patent 9,407,564 B2)
IPR2024-00919 (Patent 8,868,772 B2)[2]

Before JOHN A. SQUIRES, *Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office*.

ORDER

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[1] Webgroup Czech Republic, A.S. and NKL Associates, S.R.O. filed petitions in IPR2025-00347 and IPR2025-00348, and have been joined as petitioners to IPR2024-00918 and IPR2024-00919, respectively.
[2] This order applies to each of the above-listed proceedings.

The Office received a request for Director Review of the Final Written Decision in each of the above-captioned cases and an authorized response to each request. *See* Papers 84, 85.[3]

Having considered the requests and responses, it is:

ORDERED that the requests for Director Review are denied.

[3] Citations are to the record in IPR2024-00918. The parties filed similar papers in IPR2024-00919.

IPR2024-00918 (Patent 9,407,564 B2)
IPR2024-00919 (Patent 8,868,772 B2)

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