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Paper 48
Entered: May 28, 2026

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STINGRAY GROUP INC. AND STINGRAY MUSIC USA, INC.,
Petitioners,

v.

EDWIN A. HERNANDEZ-MONDRAGON,
Patent Owner.

IPR2025-00351
Patent 11,140,441 B2

Before TERRENCE W. McMILLIN, JASON M. REPKO, and BRIAN P. MURPHY, *Administrative Patent Judges.*

MURPHY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background and Summary

Stingray Group Inc. and Stingray Music USA, Inc. ("Petitioner") filed a Petition pursuant to 35 U.S.C. § 311 requesting institution of *inter partes* review of claims 1–26 of U.S. Patent No. 11,140,441 (Ex. 1001; "the '441 patent"). Paper 1 ("Pet."). Edwin A. Hernandez-Mondragon ("Patent Owner") timely filed a Patent Owner Preliminary Response. Paper 7. On June 13, 2025 we instituted inter partes review of claims 1–26 pursuant to 35 U.S.C. § 314 based on the challenges in the Petition. Paper 18. Subsequent to institution, Patent Owner filed a Response. Paper 31 ("Resp."). Petitioner filed a Reply, and Patent Owner filed a Sur-Reply. Paper 37 ("Reply"); Paper 38 ("Sur-Reply").

We have jurisdiction under 35 U.S.C. § 6. This is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–26 of the '441 patent. We conclude Petitioner has demonstrated by a preponderance of the evidence that claims 1–9 of the '756 patent are unpatentable. We also conclude Petitioner has not demonstrated by a preponderance of the evidence that claims 10–26 of the '441 patent are unpatentable.

B. Real Parties in Interest and Related Matters

Petitioner represents that Stingray Group Inc. and its subsidiary Stingray Music USA, Inc. are the real parties in interest. Pet. 4. Patent Owner represents that Dr. Edwin A. Hernandez-Mondragon, an individual residing in Coral Springs, Florida, and EGLA Corp., a Florida corporation with its principal place of business at 4890 NW 101st Ave., Coral Springs, Florida, are the real parties in interest. Papers 24–26. The parties represent that the challenged patent has been asserted in

Hernandez v. Stingray Group, Inc., No. 1:24-cv-21226 (S.D. Fla. Apr. 2, 2024). Pet. 5; Paper 4, 2 (Mandatory Notices).

C. The '441 Patent

The '441 patent, titled "Method, System, and Apparatus for Multimedia Content Delivery to Cable TV and Satellite Operators," is directed to delivering multimedia content from the cloud to cable or satellite operators. Ex. 1001, Abstract (code 57). For example, a cable or satellite provider can request a media stream from a cloud service for playback on a broadcast-media channel. *Id.* at 2:56–59. Before providing the requested media stream, the system generates a multimedia file in a format that is compatible with the content provider's system. *Id.* at 2:64–66. The '441 patent describes the example of retrieving a requested audio file and "a plurality of images as screen captures that can correspond to a video component of the multimedia [file]." *Id.* at 3:4–8.

The claimed method includes "a 'Custom UI,' or a customizable User Interface that is designed using Hypertext Markup Language (e.g. HTML) or a web service." *Id.* at 6:66–7:1. "Moreover, this custom UI can include JavaScript, CSS, and HTML content files that can be rendered using a browser using WebKit (e.g. PhantomJS or Safari) or any other browser-rendering engine compatible with HTML4/5 or any future HTML version." *Id.* at 7:5–9. The browser-rendering engine "can be used to retrieve a set of screens [screen captures] from the web-service being contacted" such that "a sequence of screens . . . can be used to generate a video file." *Id.* at 7:19–32. The '441 patent states:

> As an example, if an audio content file is used such as an MP3 file, this function can create a video file from all the screens captured by 526 [Fig. 5]. Those screens are generated by calling a URL where the web-service is associated and *creating a video file* with the input audio and the captured screens. The output format can be an MPEG Transport

> Stream file that can be retrievable or streamed to the multicasting embodiment.

Id. at 7:35–39 (emphasis added). In other words, the system uses a browser-rendering engine to generate a sequence of screen captures of a web page that are used to create a video file. In the described example, the video file created from the sequence of web page screen captures is multiplexed with the requested audio file in a format compatible with the content provider's broadcast-media channel, such as an MPEG Transport Stream file.

D. Illustrative Claim

Independent claims 1, 10, 25, and 26, and dependent claims 2–9 and 11–24, are the challenged claims. Claims 1 and 10, reproduced below with Petitioner's identifiers for the claim limitations in bold (*see* Pet. 11–28, viii, ix), illustrate the claimed subject matter:

> **[Preamble 1]** A computer-implemented method, comprising:
>
> **[1a]** creating a plurality of multimedia assets at a caching unit, for each one of the plurality of multimedia assets:
>
> **[1b]** determining that there is sufficient storage space for the multimedia asset at the caching unit;
>
> **[1c]** generating a channel identifier for the multimedia asset;
>
> **[1d]** retrieving from a cloud service a plurality of media files to be included in the multimedia asset including a media identifier for each one of the media files;
>
> **[1e]** for each one of the media files, creating a custom hypertext transfer markup language (HTML) user interface that includes video;
>
> **[1f]** encoding each of the media files and encapsulating them together using an MPEG transport stream format;

[1g] storing each one of the multimedia assets at the caching unit;

[1h] receiving a request at the caching unit for one of the multimedia assets from a broadcasting unit; and

[1i] responsive to receiving the request, the caching unit providing the multimedia asset to the broadcasting unit in the MPEG transport stream format.

Ex. 1001, 14:52–15:7.

[Preamble 10] A computer-implemented method comprising:

[10a] virtualizing a system including a virtualized caching server, wherein the virtualized caching server performs:

[10b] receiving from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items of different types;

[10c] obtaining content corresponding to the plurality of multimedia items from at least one source offering the content in at least one first format;

[10d] rendering a web page by a browser using the content;

[10e] generating a temporal sequence of screen captures of the rendered web page, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time;

[10f] assembling the at least one media stream using the temporal sequence of screen captures; and

[10g] providing the at least one media stream to the content provider for broadcast on the broadcast media channel.

Ex. 1001, 15:34–15:57.

E. Prior Art and Asserted Grounds of Unpatentability

Petitioner asserts claims 1–26 are unpatentable on the following Grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/ Basis
1, 7 (Ground 1)	102[1]	Farber[2]
1, 2, 7 (Ground 2)	103	Farber and Vermeulen[3]
3 (Ground 3)	103	Farber and Pavlovskaia[4]
4, 5, 8 (Ground 4)	103	Farber and Davis[5]
6, 9 (Ground 5)	103	Farber and Fogel[6]
10–16 and 18–23 (Ground 6)	103	Avellan[7] and Pavlovskaia-PCT[8]
15 (Ground 7)	103	Avellan, Pavlovskaia-PCT, and Durante[9]
16 (Ground 8)	103	Avellan, Pavlovskaia-PCT, and Ma[10]
17 (Ground 9)	103	Avellan, Pavlovskaia-PCT, and Suzuki[11]
24 (Ground 10)	103	Avellan, Pavlovskaia-PCT, and Gangadharan[12]

[1] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA") includes revisions to 35 U.S.C. §§ 102, 103 that became effective after the filing date of the application that led to issuance of the challenged patent. Hence, this *inter partes* review is governed by the pre-AIA provisions of 35 U.S.C. §§ 102, 103.
[2] US 7,940,303 B1, filed Nov. 12, 2009 (Ex. 1003, "Farber").
[3] US 9,009,111 B2, filed May 14, 2012 (Ex. 1005, "Vermeulen").
[4] US 8,442,110 B2, filed Oct. 9, 2008 (Ex. 1006, "Pavlovskaia").
[5] US 8,676,822 B2, filed Feb. 6, 2009 (Ex. 1008, "Davis")
[6] US 2012/0117569 A1, published May 10, 2012 (Ex. 1009, "Fogel").
[7] US 8,954,600 B2, filed March 2, 2012 (Ex. 1004, "Avellan").
[8] WO 2010/044926 A2, Pub. April 22, 2010 (Ex. 1007, "Pavlovskaia-PCT").
[9] US 8,819,043 B2, filed Nov. 9, 2010 (Ex. 1010, "Durante").
[10] US 9,635,075 B2, filed Mar. 8, 2010 (Ex. 1011, "Ma").
[11] US 6,463,445 B1, filed Sept. 30, 1999 (Ex. 1012, "Suzuki").
[12] US 9,331,967 B2, filed Oct. 31, 2013 (Ex. 1014, "Gangadharan").

Claim(s) Challenged	35 U.S.C. §	Reference(s)/ Basis
25 (Ground 11)	103	Avellan and Wannamaker[13]
26 (Ground 12)	102	Avellan
26 (Ground 13)	103	Avellan and Wannamaker

Pet. 1. Petitioner relies on the declaration of Mr. Stuart Lipoff in support of the Petition. Ex. 1002. Patent Owner relies on the declaration of Dr. Hernandez-Mondragon in support of the Response. Ex. 2039.

II. ANALYSIS

A. Level of Ordinary Skill in the Art and Claim Construction

The Petition states that a person of ordinary skill in the art ("POSITA") "would have a bachelor's or equivalent degree in computer science or a related field and at least 2 years of experience in multimedia processing or delivery using internet protocols." Pet. 10 (citing Ex. 1002 ¶¶ 67–68). The Petition further states that "a person with less formal education but more experience, or more formal education but less experience, could have also met the relevant standard for a POSITA." *Id.* Patent Owner submits a similar definition and does not take issue with the Petition's characterization of the level of ordinary skill in the art of delivering multimedia content. Resp. 18.

We determine that no express finding is necessary and that the level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). Any perceived difference in how each party characterizes a POSITA's education, knowledge, and work experience does not change our analysis or conclusions.

[13] US Pub. No. 2004/0031052 A1, published Feb. 12, 2004 ("Ex. 1013, "Wannamaker").

Neither party has offered any claim construction arguments, relying on ordinary and customary meaning. Pet. 11; Resp. 18–19; Reply 5. We determine that construction of claim terms is not necessary to resolve the disputes raised by the parties in this proceeding. *See, e.g.*, *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

B. Legal Standards

"In an inter partes review, the burden of persuasion is on the petitioner to prove 'unpatentability by a preponderance of the evidence,' 35 U.S.C. § 316(e), and that burden never shifts to the patentee." *In re Magnum Oil Tools Int'l Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016) (quoting *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015)); *see also Aqua Products, Inc. v. Matal*, 872 F.3d 1290, 1306 (Fed. Cir. 2017 (en banc) (quoting *Magnum Oil*)).

Anticipation under 35 U.S.C. § 102 requires "the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim." *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010); *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). To anticipate a patent claim under 35 U.S.C. § 102, "a reference must describe, either expressly or inherently, each and every claim limitation and enable one of skill in the art to practice an embodiment of the claimed invention without undue experimentation." *American Calcar, Inc. v. Am. Honda Motor Co.*, 651 F.3d 1318, 1341 (Fed. Cir. 2011) (citing *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009)). "[E]xtrinsic evidence may be considered when it is used to explain, but not expand, the meaning of a reference." *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed.

Cir. 1991) (citing *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576–77 (Fed. Cir. 1991)).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). Obviousness is resolved based on underlying factual determinations, 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) objective evidence of nonobviousness, i.e., secondary considerations.[14] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). A party who petitions the Board for a determination of obviousness must show that "a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so." *Procter & Gamble Co. v. Teva Pharms. USA, Inc.*, 566 F.3d 989, 994 (Fed. Cir. 2009) (quoting *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007)).

We assess Petitioner's evidence and argument according to the above-referenced standards. For the reasons given below, we determine the Petition establishes by a preponderance of the evidence that claims 1–9 of the '441 patent are unpatentable as obvious over Farber and Vermeulen (Ground 2), Farber and Pavlovskaia (Ground 3), Farber and Davis (Ground 4) and Farber and Fogel (Ground 5). We further determine the Petition does not establish by a

[14] Neither party presents secondary consideration evidence.

preponderance of the evidence that claims 10–26 are unpatentable as obvious over Avellan and Pavlovskaia-PCT (Ground 6), Avellan, Pavlovskaia-PCT and Durante (Ground 7), Avellan, Pavlovskaia-PCT and Ma (Ground 8), Avellan, Pavlovskaia-PCT and Suzuki (Ground 9), Avellan, Pavlovskaia-PCT and Gangadharan (Ground 10), and Avellan and Wannamaker (Grounds 11 and 13), or anticipated by Avellan (Ground 12).[15]

C. Asserted Anticipation of Claims 1 and 7 by Farber (Ground 1)

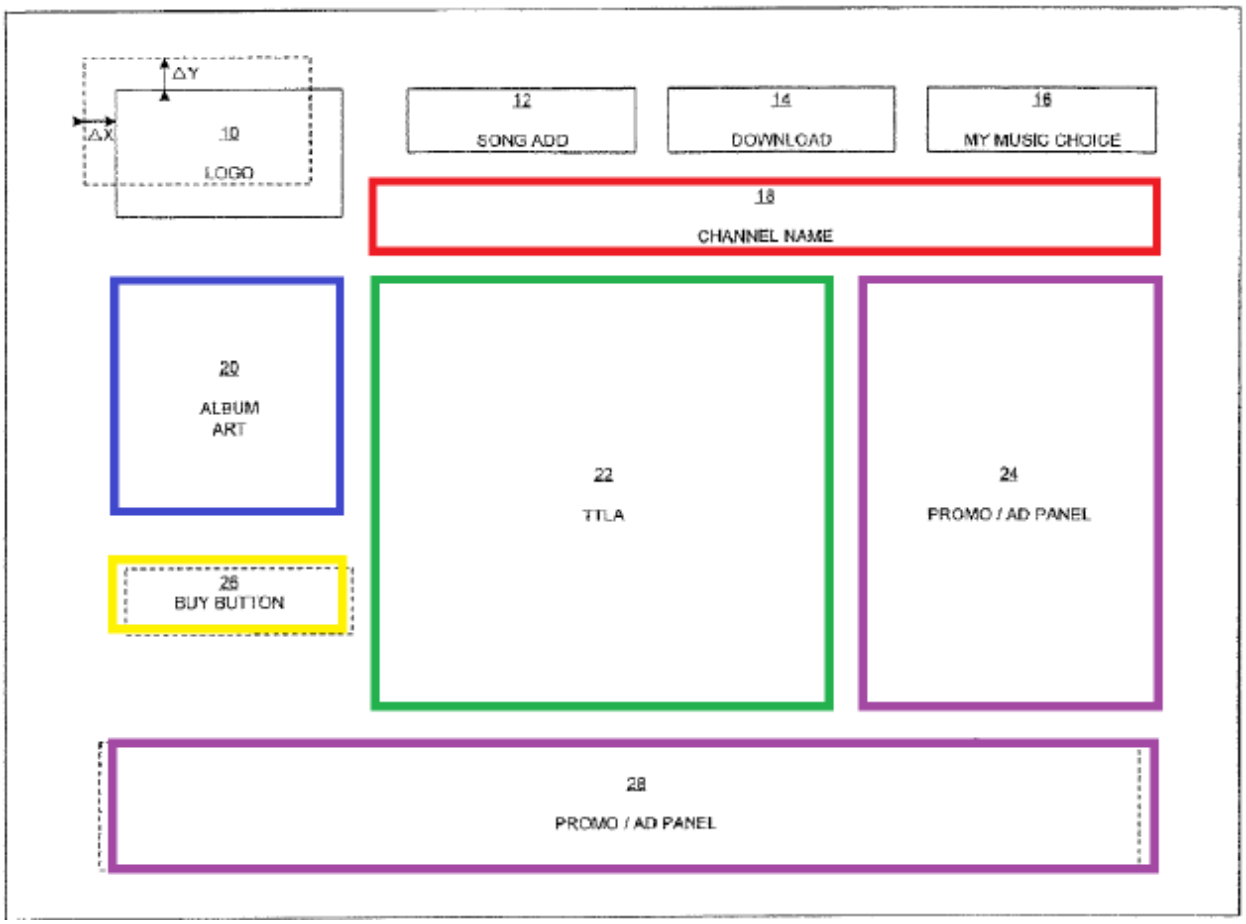
The Petition contends that claims 1 and 7 of the '441 patent are anticipated by Farber (Ground 1) under 35 U.S.C. § 102. Pet. 11–29. Claim 7 depends from claim 1. Patent Owner opposes, contending that Farber fails to disclose all of the limitations recited in claims 1 and 7. Resp. 20–26, 50–56. We begin with a discussion of Farber.

1. Farber (Ex. 1003)

Farber discloses an "audio broadcast system . . . designed for transmitting various music channel broadcasts over a network such as a cable television network or a satellite network for distribution to a plurality of subscribers." Ex. 1003, 5:9–12. Farber's audio broadcast system "is adaptable for use in broadcasting other content as well." *Id.* at 5:12–15. For example, Farber discloses a user interface screen that is "displayed coincident with the transmission of a broadcast music channel" and contains "various assets," i.e., other content associated with the broadcast audio data. *Id.* at 3:38–44.

We reproduce below annotated Farber Figure 1 from the Petition:

[15] The Petition identifies Grounds of challenge 1–9, then skips from Ground 9 to Ground 11, and identifies two Grounds as "Ground 12." Pet. 8. The body of the Petition, however, correctly identifies Grounds 1–13.



Pet. 13 (citing Ex. 1003, Fig. 1). In Farber Figure 1, the displayed content associated with the broadcast audio includes "channel name 18 [red box], album art 20 [blue box], title track label and artist information 22 [green box], promotional/advertising panels 24, 28 [purple boxes] and a buy button 26 [yellow box]." *Id.* at 12 (quoting Ex. 1003, 3:38–44). The displayed content may also include "motion picture video." Ex. 1003, 3:31.

Farber's system includes data carousel subsystem 46 that retrieves the content associated with the broadcast audio "from one or a plurality of data sources 42, 44," as depicted below in annotated Farber Figure 4 from the Petition:

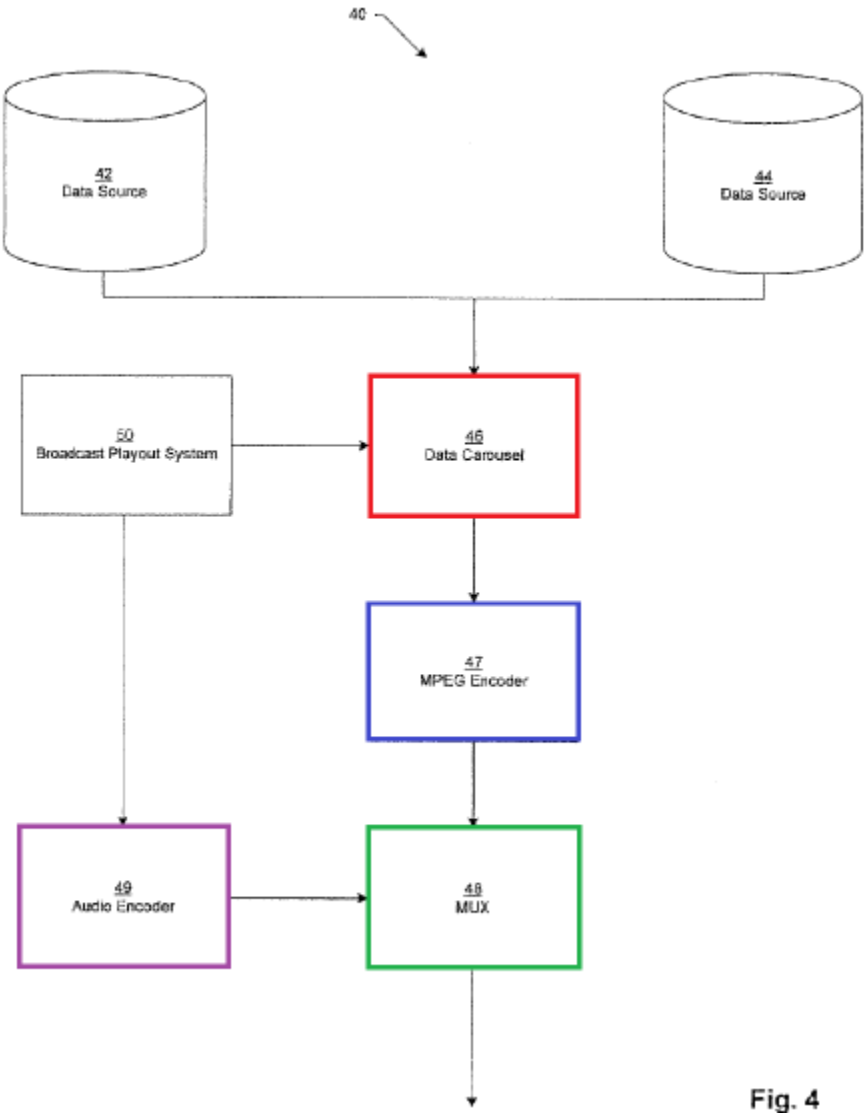


Fig. 4

Pet. 14 (citing Ex. 1003, Fig. 4). In Farber Figure 4, "data source 42 may contain, for example, information to support the channel name asset 18 and may include a song identification database, which contains playlist information . . . programmed by genre or channel for a given type of music." Ex. 1003, 5:18–22. Each data source may be "connected to a server or other computer for managing the database" and "may or may not be located in a single location and may or may not be co-located with the data carousel subsystem 46." *Id.* at 5:22–25, 5:29–38.

In Farber Figure 4, "the encoder 47 [blue box] pulls template information, images, and text from the data carousel subsystem 46 [red box] and creates, based on the template information, a screen having embedded assets such as those shown in screens 1, 2 or 3 [Figs. 1–3] which are associated with the currently queued song." Pet. 13 (quoting Ex. 1003, 6:3–7). "The MPEG encoder 47 then creates an MPEG transport stream for all channels with the embedded MPEG video frames." *Id.* (quoting Ex. 1003, 6:7–8). "The multiplexer 48 [green box] serves to combine the audio feed from the audio encoder 49 [purple box] and the associated encoded MPEG transport stream from the MPEG encoder 47." *Id.* (quoting Ex. 1003, 6:18–21). "The multiplexer 48 then feeds the multiplexed signal out for broadcast in the form of a video transport stream to a distribution system," such as "a cable television network or a satellite network provider." *Id.* (quoiting Ex. 1003, 6:21–25). In an alternative embodiment, relied on by Petitioner, Farber adds a storage/playout device that stores the multiplexed signal "in applications where playout is desired at a later time." Ex. 1003, 7:62–8:3, Fig. 5 (element 150).

2. The Petition Does Not Establish that Claim 1 Is Anticipated by Farber

Claim 1 of the '441 patent recites "a computer-implemented method comprising: [1a] *creating a plurality of multimedia assets at a caching unit, for each one of the plurality of multimedia assets:* [1b] *determining that there is sufficient storage space for the multimedia asset at the caching unit; . . . .*"

a. "the caching unit"

The Petition maps Farber's audio broadcast system, depicted in Figures 1, 4 (40), and 5 (140), onto the caching unit recited in limitations [1a] and [1b]. Pet. 11–17. The Petition does not contend the caching unit is only the storage/playout device depicted in Figure 5 (150), as argued by Patent Owner. *See* Resp. 20 ("Petition, 26 appears to say Element 150, FIG 5 is the caching unit."), 51 ("mere

presence of storage media in Farber does not disclose or teach a caching unit"), 52 ("a data storing device is not a caching unit"). As counsel for Petitioner stated at the hearing: "We're pointing to the audio broadcast system of Farber, of which there's two embodiments as the caching unit. Not simply the storage unit that is added in one of the embodiments as the sole caching unit, because the whole system performs the method, which is all that's required by the claim." Tr. 21:14–21. We are persuaded by Petitioner.

The Petition supports the mapping of Farber's audio broadcast system onto the "*caching unit*" recited in claim 1 with detailed, annotated explanations of Farber Figures 1, 4, and 5, discussed in sub-section 1, above. Pet. 11–17. The Petition further supports the mapping of the caching unit with citations to the language recited in claim 1 of the '441 patent:

> The elements of Claim 1 recite that a "multimedia asset" is associated with a "channel identifier" and includes a "plurality of media files" that are encoded and encapsulated together in an "MPEG transport stream" and stored "at the caching unit." In response to a request, "the caching unit provide[s] the multimedia asset to the broadcasting unit in the MPEG transport stream format."

Pet. 14–15 (citing Ex. 1001, 14:58–67, 15:5-7). The Petition sums up the contention in view of the cited claim elements as follows:

> Thus, Farber's disclosure of a "music channel" that includes encoded audio data and corresponding MPEG video frames for the queued song/channel discloses a "multimedia asset." As detailed below, each music channel is associated with a "channel identifier" and includes a "plurality of media files"—such as songs, album artwork and video assets—that are encoded in an "MPEG transport stream" and cached for subsequent playback. This process "may be executed for a ***plurality of channels*** simultaneously." Accordingly, Farber discloses "creating a plurality of multimedia assets at a caching unit," and "for each one of the plurality of multimedia assets" Farber further discloses the elements below.

Id. at 15 (citing Ex. 1003, 6:9–10). We find the Petition consistently maps Farber's audio broadcast system onto the "*caching unit*" recited in claim 1.

Patent Owner's argument, that the caching unit is "a specialized component that temporarily and dynamically stores recently or frequently accessed multimedia data to reduce latency and improve playback efficiency, requiring specific operational behavior and memory management policies," improperly reads implied limitations into the claimed caching unit. Resp. 51. Such limitations are not recited in or required by claim 1. Nor is the caching unit claimed to be "a server with operating systems, logs files, programs, and multiple media streams are being generated" as argued by Patent Owner. *Id.* at 21. We will not read preferred embodiments from the specification into claim language that is not so limited. *See SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (care should be taken "not to import into a claim limitations that are not a part of the claim"); *see also In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) ("limitations are not to be read into the claims from the specification"); *see also IQRIS Techns. LLC v. Point Blank Enterprises, Inc.*, 130 F.4th 998, 1004 (Fed. Cir. 2025) ("It is the claims, not the preferred embodiments, that define the metes and bounds of the patentee's invention.") (citing *Phillips*).

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber discloses "*a caching unit*" as recited in limitations [1a] and [1b].

b. Limitation [1b]: "determining . . . sufficient storage space for the multimedia asset at the caching unit;"

The Petition contends the following statement in Farber inherently discloses limitation [1b]:

> The output of the multiplexer 148 is fed to a storage/playout device 150. The storage/playout device 150 may be implemented utilizing any

> display or transmission device which is capable of displaying or transmitting video images. *Alternatively, in applications where playout is desired at a later time*, the storage/playout device 150 may be implemented utilizing a recorder for creating or writing to any suitable storage medium such as DVD, CD ROM, hard disk, or any other suitable read only or rewritable storage medium.

Pet. 16–17, 26–27 (emphasis added) (citing Ex. 1003, 7:62–8:3). The Petition argues:

> POSITAs would recognize that the successful playout of the requested media stream is a "determin[ation] that there is sufficient storage space" for the multimedia asset at the caching unit. In other words, by retrieving "at a later time" the stored data, there must have been sufficient storage space for that data. . . .
>
> Because successfully storing and retrieving a multimedia asset satisfies the plain and ordinary language of Element 1b, POSITAs would recognize that Farber *inherently teaches* Element 1b.

Pet. 17 (emphasis added) (citing Ex. 1002 ¶ 126). Mr. Lipoff testifies that "a POSITA would recognize that Farber's discussion of storing and retrieving the multiplexed transport stream for subsequent playback both explicitly and inherently teaches Element 1b." Ex. 1002 ¶ 126; *see also* Reply 7 ("POSITAs would recognize that successfully storing and retrieving a multimedia asset inherently teaches Element 1b.") (citing Ex. 1002 ¶ 126).

Petitioner further asserts that limitation [1b] does not require the determination of sufficient storage space to be made "***before*** storing the multimedia asset, nor does it require a determination of a specific ***amount*** of available space," nor does it specify the form for such a determination step or require "any subsequent action in response." Pet. 17. *Id.* We are unpersuaded.

To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill."

Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268 (Fed. Cir. 1991). "'Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.'" *Id.* at 1269 (quoting *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981)). Reasonable inferences of a POSITA may suffice to establish inherent disclosure in a prior art reference such as Farber. *See Eli Lilly v. Los Angeles Biomedical Research Institute*, 849 F.3d 1073, 1074–1075 (Fed. Cir. 2017) ("[T]he dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference."). Here, however, we find the Petition's argument and evidence insufficient to establish by a preponderance of the evidence that Farber inherently discloses limitation [1b].

The method of claim 1 recites the affirmative step of "*determining*" sufficient storage space for "*each one*" of the multimedia assets created at the caching unit. As Patent Owner states, "a system that merely stores until it fails, overwrites, or errors out is not performing such determination." Resp. 53–54 (citing Ex. 1001, 10:41–43). Patent Owner and Dr. Hernandez emphasize the '441 patent description of exemplary method step 508 in Figure 5: "the method checks for sufficient space left in the memory or hard drive." Ex. 1001, 6:47–48; *see also* Resp. 21–22 ("'441 patent teaches check space 'left' greater than 'threshold'") (citing Hernandez Dec. Ex. 2039 ¶¶ 132–135). The '441 patent further describes the step of determining sufficient storage space as a "task [that] can be run on a

thread together with all the other tasks that are working in parallel in order to speed up the processes of encoding and transcoding." Ex. 1001, 6:49–51.

The determining step exemplified in Figure 5 (step 508) is reproduced below:

Ex. 1001, 6:47–48, Fig. 5. In Figure 5, step 508 is "determining a safe 'threshold' to keep as reserved space," which is "fundamental in multimedia systems," such as Linux file systems where "lack of [*i*-Node] space will generate corrupted outputs and difficult errors to resolve." Ex. 2039 ¶¶ 132, 135. In Ground 2, Petitioner implicitly acknowledges the need for an affirmative step of determining sufficient storage space for each multimedia asset, by citing Vermeulen's teaching of a "nodepicker" that acts as "storage node selection logic" to ensure the nodes "are expected to have sufficient storage resources available to accept the object." Pet. 29 (addressing limitation [1b]) (citing Ex. 1005, 7:2–3, 14:59–60, 14:65–15:8) (emphasis omitted).

In short, the '441 patent makes clear the claimed method requires an affirmative step for "*determining that there is sufficient storage space for the multimedia asset at the caching unit*." In contrast, the Petition does not establish by a preponderance of the evidence that a POSITA would reasonably infer that Farber's system necessarily determines sufficient storage space for each multimedia asset created and stored. We agree with Patent Owner: "Farber is silent on storage sufficiency evaluation, and inherency requires inevitability."

Resp. 54. The recited determining step is something more than "an implicit byproduct of having or lacking storage capacity." *Id.*

We further determine that neither the Petition nor Mr. Lipoff persuasively addresses why a POSITA would know that determining storage sufficiency for each multimedia asset is necessarily present in Farber's method of creating multimedia assets for broadcast. As Patent Owner argues, "[i]nherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result is not sufficient." Sur-Reply 12 (citing *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999); *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)). For example, Farber discloses the use of fixed storage capacity media, such as DVD or CD-ROM, where one could "bring the DVD and play it at home." Ex. 1032, 55–56 (Hernandez Depo. 217:1–4, 218:4–9); *see also* Ex. 2042, 256–257 ("CD-ROM and DVD media have a fixed storage capacity"). There would not necessarily be a need to determine sufficient storage capacity in such storage media, and Farber does not suggest or imply otherwise. *Id.*; *see also* Resp. 21 ("[a] POSITA will know that 'at a later time' means with a CDROM, using a CD Player connected to a display.").

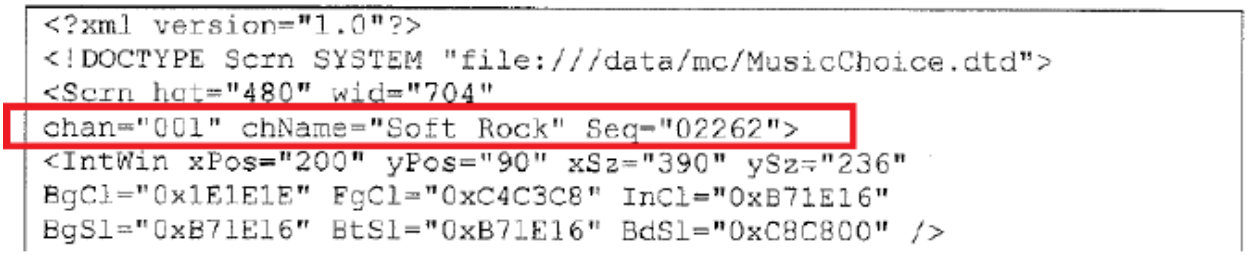
Petitioner's reply argument, that Farber's system "can use" any suitable storage medium such as a hard disk or rewritable storage, does not negate the possibility that Farber's system can store multimedia assets in DVD or CD-ROM format for later playout via compatible media player. Reply 7 (citing Ex. 1003, 7:66–8:3). For such an application, the Petition does not establish that "*determining*" the sufficiency of storage space for "*each one*" of the created multimedia assets encoded for broadcast "*in the MPEG transport stream format*" (limitations [1f] and [1i]) is necessarily present, as required by the law of inherent

anticipation. We further note that Petitioner did not file a reply declaration of Mr. Lipoff to address the point.

For the reasons given above, we determine the Petition does not establish by a preponderance of the evidence that Farber inherently discloses "*determining that there is sufficient storage space for the multimedia asset at the caching unit*" as recited in limitation [1b].

c. *Limitation [1c]: generating a channel identifier for the multimedia asset;*

The Petition contends that Farber discloses limitation [1c]. Pet. 17–19 (citing Ex. 1003, 5:18–22, 6:23–25, 6:36–44, Fig. 6). The Petition cites the example in annotated Farber Figure 6, reproduced below from the Petition:



Id. at 18. Annotated Farber Figure 6 depicts "the markup language for an example user interface that would accompany Elton John's song 'Are You Ready for Love,' which includes identifiers for channel name 'Soft Rock' and channel number '001'." *Id.* The Petition emphasizes Farber's corresponding disclosure that "[t]he screen tag may include a number of attributes, including . . . channel ('chan'), which ***may be used to identify the name of the broadcast music channel with which the template data is associated***," as a disclosure of limitation [1c]. *Id.* (quoting Ex. 1003, 6:36–44). We agree with the conclusion in the Petition that "Farber's disclosure of channel names (like 'Soft Rock') and numbers satisfies [limitation] 1c." *Id.* at 19.

Patent Owner does not address limitation [1c]. Resp. 20–26, 50–56; Sur-Reply 10–16.

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber discloses limitation [1c].

d. Limitation [1d]: "retrieving from a cloud service a plurality of media files to be included in the multimedia asset including a media identifier for each one of the media files;"

We address limitation [1d] in two parts, analyzing whether Farber discloses retrieving media files "*from a cloud service*" in the second part.

First, we agree with Petitioner that Farber discloses retrieving a plurality of media files to be included in the multimedia asset, including a media identifier for each one of the media files. Pet. 19–21. Farber discloses that the user interfaces (Figures 1–3) "may change . . . at the beginning of each new song being broadcast." Ex. 1003, 4:33–36. For each song, "[t]he broadcast playout system 50 sends audio content (e.g., an audio work), such as a queued song, to the audio encoder 49" that "supplies audio which is associated with the video frame output of the image encoder 147," in a manner similar to the exemplary multimedia file created in the '441 patent. *Compare* Ex. 1003, 5:63–67, 7:43–45 *with* Ex. 1001, 7:32–37 ("creating a video file with the input audio and the captured screens").

Farber discloses retrieving a media identifier for each media file using the data carousel subsystem. Ex. 1003, 5:16–29 (data sources providing "song identification database," "title and track label and artist asset"). For each song, Farber retrieves an album cover, such as the ".jpg" file for "Elton John's Greatest Hits 1970-2002" album listed in annotated Figure 6, reproduced below from the Petition:

```
pos="2" />
<Grobj src="mcAA1730327.jpg" desc="Elton John&apos;s Greatest
Hits 1970-2002"
xPos="501" yPos="338" xSz="100" ySz="100" wid="100" hgt="100"
pos="3" />
<Grobj src="mcBA506412.jpg" Billable="N"
```

Pet. 19–20 (citing Ex. 1003, Fig. 6). In Figure 6, Farber further discloses information identifying the song's title, artist, album, and an associated Unique ID ("UniqID value='3310722'"), reproduced below as annotated from the Petition:

```
<Grobj
xPos="214" yPos="92" xSz="214" ySz="251" wid="214" hgt="251"
pos="1" >
 <SongTitle value="Are You Ready For Love (2003)"/>
 <Artist value="Elton John"/>
 <RecordLabel value="ULTRA"/>
 <CD value="Elton John&apos;s Greatest Hits 1970-2002"/>
 <UniqID value="3310722"/>
</Grobj>
<Grobj src="mcBT_BuyPrevious_1.jpg" desc="Buy Previous Button"
xPos="209" yPos="314" xSz="129" ySz="37" wid="129" hgt="37"
pos="2" />
<Grobj src="mcAA1730327.jpg" desc="Elton John&apos;s Greatest
Hits 1970-2002"
xPos="501" yPos="338" xSz="100" ySz="100" wid="100" hgt="100"
pos="3" />
<Grobj src="mcBA506412.jpg" Billable="N"
xPos="336" yPos="128" xSz="320" ySz="192" wid="320" hgt="192"
pos="4" />
```

Pet. 20–21 (citing Ex. 1003, Fig. 6). In Figure 6 (lower red box), Farber discloses the use of a graphic object source ("src") tag "to identify the path and/or name of an asset," and a description ("desc") tag "to provide a description of the asset identified by the source attribute." Ex. 1003, 6:46–50.

Patent Owner's response, that neither "Petition nor Farber shows evidence that a) there is a media file, and b) even less, that a 'media identifiers' is used for retrieval," is incorrect. Resp. 22. As discussed above, the Petition demonstrates that Farber discloses "[a]n audio feed . . . supplies audio which is associated with the video frame output." Ex. 1003, 7:43–44. We agree with Petitioner that the

audio would correspond to a media file. Reply 7–8. We further agree the Petition demonstrates how Farber discloses retrieval of a media identifier for each audio file, including information identifying a song's title, an associated Unique ID ("UniqID value='3310722'"), and a description ("desc") for album artwork. *Id.* at 8. Contrary to Patent Owner's argument, limitation [1d] does not recite or require that the media identifier be "used for retrieval" (Resp. 22), and claim 1 does not recite such a functional limitation for the media identifier.

Second, the Petition contends that Farber discloses retrieving a plurality of media files "*from a cloud service*" as recited in limitation [1d]. Pet. 21–22 (citing Ex. 1002 ¶ 127). The Petition contends that Farber discloses such a cloud service because Farber discloses that data sources "may be connected to or in communication with the data carousel subsystem 46" and "may or may not be co-located with the data carousel subsystem 46." Pet. 21 (citing Ex. 1003, 5:33–38, 5:29–30). Mr. Lipoff testifies as follows:

> With respect to Element 1d, a POSITA would recognize that Farber discloses that both the audio feed and data source 44—which provide access to digital files with media content stored in them—can be implemented *on remote servers that are not "co-located" with the data carousel* and are accessed over a *communications network*. A POSITA would understand such remote servers to be a cloud-based service.

Ex. 1002 ¶ 127 (emphases added). The Petition argues, therefore, that "POSITAs would understand this to mean that the data sources can be cloud-based and accessed over a network." Pet. 22 (citing Ex. 1002 ¶ 127).

We find Mr. Lipoff's testimony and the Petition's argument to be consistent with Farber in view of the level of skill in the art—a bachelor's degree in computer science and at least two years of experience in multimedia processing or delivery using internet protocols (Pet. 10)—and an appropriate explanation of what a

POSITA would understand from reading Farber without improperly expanding the meaning of the reference. *See Acoustic Tech., Inc. v. Itron Networked Solutions, Inc.*, 949 F.3d 1366, 1373 (Fed. Cir. 2020) ("Expert testimony may shed light on what a skilled artisan would reasonably understand or infer from a prior art reference."); *In re Baxter Travenol Labs.*, 952 F.2d at 390. Patent Owner's argument—that "although a data sou[r]ce could be 'remote,' the Petition, 21-22 does not show that the cloud-service system uses the media identifier for the retrieval process"—is not commensurate with the claim language. Resp. 23. As previously stated, claim 1 does not recite or require that the cloud service system "uses the media identifier for the retrieval process" or otherwise limit retrieval of media files from "*a cloud service*" beyond what we have discussed above. Patent Owner does not raise another argument addressed to the "*cloud service*" element of limitation [1d] in its Response or Sur-Reply. *Id.* at 22–23; Sur-Reply 7–16.

Patent Owner also does not dispute the Petition's evidence that a POSITA would understand Farber's "remote" servers, which are "not . . . co-located with the data carousel subsystem," would be accessed over a communications network thereby providing a cloud service. *Compare* Pet. 21–22 (citing Ex. 1002 ¶ 127) *with* Resp. 22–23 ("although a data sou[r]ce could be 'remote,' the Petition, 21-22 does not show that the cloud-service system uses the media identifier for the retrieval process"). Farber expressly discloses that the "second data source 44 may also be associated with and connected to a server or other computer." Ex. 1003 at 5:29–30; *see* Pet. 21 (citing Ex. 1003, 5:29–30). Farber further discloses that data sources 42 and 44 "may or may not be located in a single location and may or may not be co-located with the data carousel subsystem." Ex. 1003 at 5:36–38. Thus, we find Mr. Lipoff's testimony that a "POSITA would understand such remote servers to be a cloud-based service" to be persuasive, because it is consistent with

Farber, the level of skill in the art, and the language recited in limitation [1d].

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber discloses limitation [1d].

> e. *Limitation [1e]: "for each one of the media files, creating a custom hypertext transfer markup language (HTML) user interface that includes video;"*

The Petition establishes that Farber discloses limitation [1e].

For each media file, Farber discloses a custom user interface associated with the queued song such that the interface is "displayed coincident with the transmission of a broadcast music channel." Pet. 22 (citing Ex. 1003, 3:38–39). For each song, "the encoder 47 pulls template information, images, and text from the data carousel subsystem 46 and creates, based on the template information, a screen having embedded assets such as those shown in screens 1, 2 or 3 [Figures 1–3], which are associated with the currently queued song." *Id.* (quoting Ex. 1003, 6:2–7). Farber also discloses that each interface "may be coded utilizing HTML, XML or other suitable protocols for creating templates/screens having text and other assets such as those described above." *Id.* at 23 (citing Ex. 1003, 5:50–54). Farber further discloses that each interface can include "motion picture video content," thus completing the express disclosure of all elements recited in limitation [1e]. *Id.* (citing Ex. 1003, 3:30–33, 3:48–51).

Patent Owner contends that Farber does not disclose (i) "an HTTP Server needs to be present" to implement the custom user interface, and (ii) "user-facing HTML interfaces that integrate video." Resp. 23, 54. Patent Owner's contentions are inconsistent with the express disclosures in Farber and the recited claim language. We agree with Petitioner that limitation [1e] does not recite or require the presence of an HTTP server. Reply 9. As Petitioner persuasively explains, the '441 Patent describes the custom user interface as "designed using Hypertext

Markup Language (e.g., HTML) ***or*** a web service" and that a web service "***can*** be used." Reply 9–10 (citing Ex. 1001, 6:66–7:5). Therefore, Farber's use of HTML coding for the user interface is sufficient to satisfy limitation [1e], and "neither a web service nor an HTTP server is required." *Id.* Farber also clearly discloses that the HTML user interface includes "motion picture video." *Id.* at 8–9 (citing Ex. 1003, 3:30–33 ("These assets may include . . . motion picture video"), 3:48–51 ("The promotion/advertising panels 24, 28 [Figure 1] . . . may alternatively contain motion picture video content")).

Patent Owner's Sur-Reply argues that a POSITA would understand limitation [1e] as requiring "individualized per-file processing for each of the media files" and "the HTML UI includes video, embedded within the HTML itself." Sur-Reply 13–14. Patent Owner's conclusory, unexplained, and unsupported attorney argument is entitled to little or no weight. *See Cisco Systems, Inc. v. K. Mizra LLC*, 2024 WL 3841809 at *6 (Fed. Cir. 2024) ("Attorney argument cannot support the Board's finding.") (citing *Acoustic Tech.*, 949 F.3d at 1375 (Fed. Cir. 2020)). Patent Owner's argument, that the HTML UI includes video embedded within the HTML code, also reads an unrecited claim element into limitation [1e].

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber discloses limitation [1e].

f. Limitation [1f]: "encoding each of the media files and encapsulating them together using an MPEG transport stream format;"

The Petition establishes that Farber discloses limitation [1f].

Farber discloses that "data carousel subsystem 46 generates a trigger to an encoder 47, which ***may be an MPEG encoder***" and "[i]n response to the trigger, the encoder 47 pulls template information, images, and text from the data carousel

subsystem 46 and creates, based on the template information, a screen having embedded assets such as those shown in screens 1, 2 or 3, which are associated with the currently queued song." Pet. 24 (quoting Ex. 1003, 6:2–7). MPEG encoder 47 then produces "a video frame, such as an MPEG video frame." *Id.* at 24–25 (quoting Ex. 1003, 6:7–8). Similarly, "[a]n audio feed or audio encoder 149 supplies audio which is associated with the video frame output of the image encoder 147." *Id.* at 25 (quoting Ex. 1003, 7:43–45).

Farber discloses that the encoded audio and video media are encapsulated together: "[M]ultiplexer 48 receives the MPEG transport stream from the MPEG encoder 47 and simultaneously receives an encoded audio feed from an audio encoder 49." *Id.* (quoting Ex. 1003, 6:15–18). Farber also discloses that "multiplexer 48 serves to combine the audio feed from the audio encoder and the associated encoded MPEG transport stream from the MPEG encoder." Ex. 1003, 6:18–21. "The multiplexer 48 then feeds the multiplexed signal out for broadcast in the form of a video transport stream to a distribution system" such as "a cable television network or a satellite network provider." Ex. 1003, 6:21–25.

Patent Owner's Response is self-contradictory and difficult to follow. Patent Owner first argues that "[t]he only thing [F]arber discloses is that HTML is converted to an MPEG Transport Stream." Resp. 24 (citing Ex. 2039 ¶ 147). Dr. Hernandez acknowledges that "Farber discloses the 'audio encoder' returns an 'MPEG Transport Stream' that is Multiplexed with the video from the 'MPEG Transport Stream,'" but contends that "only 'encapsulation' is disclosed by Farber and no encoding." Ex. 2039 ¶¶ 147–148. The Response later argues, however, that "Farber is completely silent with respect to encapsulation." Resp. 55. We fail to grasp Patent Owner's argument, which does not address the Petition's mapping of specific disclosures in Farber onto limitation [1f].

In Sur-Reply, Patent Owner raises an entirely new argument attempting to distinguish Farber from limitation [1f]:

> Further, when interpretating the claims in light of the Specification, a POSITA would understand that Farber does not teach, suggest, or disclose encoding individual files, separating processing discrete audio and video assets, and treating media as independent elementary streams as Farber depends on trigger each song that is encoded and multiplexed (broadcasted). Additionally, a POSITA would understand that Farber does not disclose MPEG encapsulating of individual files, simply broadcasts each song at the time, and then stores the entire result that can [be] playedback in its entirety as a very long song.

Sur-Reply, 14–15. We will not consider Patent Owner's new argument raised for the first time in its Sur-Reply. *See Apple Inc. v. e-Watch, Inc.*, IPR2015-00412, Paper 50, 44 (PTAB May 6, 2016) ("'Respond,' in the context of 37 C.F.R. § 42.23(b), does not mean embark in a new direction with a new approach"); *see also Optivus Tech., Inc. v. Ion Beam Appl'ns S.A.*, 469 F.3d 978, 989 (Fed. Cir. 2006) (argument raised for the first time in the reply brief, which could have been raised in the opening brief, is waived). By failing to raise its claim interpretation argument in the Response, Patent Owner has waived the argument. *Id.*

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber discloses limitation [1f].

g. Limitation [1g]: "storing each one of the multimedia assets at the caching unit;"

The Petition maps storage/playout device 150 in Farber Figure 5 as a disclosure of limitation [1g]. Pet. 25–26. The relevant portion of annotated Figure 5 is reproduced below from the Petition:

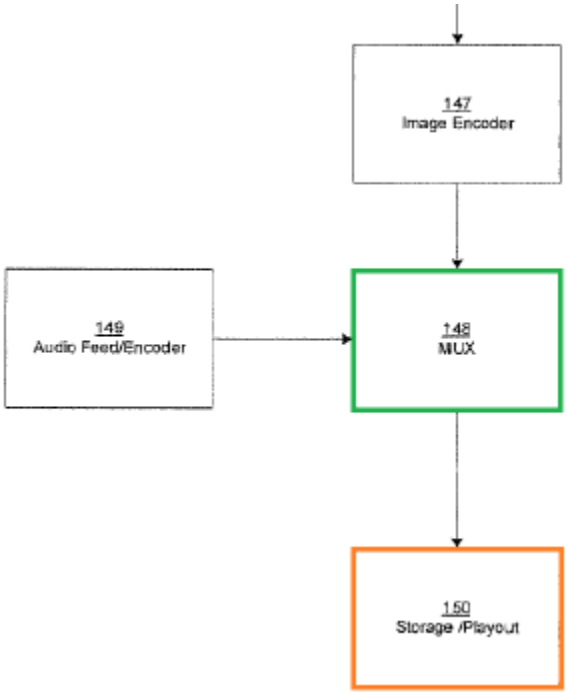


Fig. 5

Id. at 26 (citing Ex. 1003, Fig. 5). In Figure 5, storage/playout device 150 is highlighted in orange. The Petition quotes Farber: "[I]n applications where playout is desired at a later time, the storage/playout device 150 may be implemented utilizing a recorder for creating or writing to any suitable storage medium such as DVD, CD ROM, hard disk, or any other suitable read only or rewritable storage medium." *Id.* (citing Ex. 1003, 7:62–8:3). We agree with the Petition that Farber discloses limitation [1g], because Farber's Figure 5 embodiment of the audio system (the "*caching unit*") includes storage for each encapsulated multimedia asset. *Id.*

Patent Owner's Response raises three, single-sentence, unsupported attorney arguments that refer in part to its "no caching unit" contention, addressed in sub-section 2.a. above. Resp. 24. For example, Patent Owner states that "Farber does not use media files" and "the process followed by Farber is 'recording' and then 'storing'." *Id.* Patent Owner otherwise appears to read "*storing*" out of limitation [1g]. *Id.* ("the '441 Patent does not need to broadcast the multimedia assets to be

stored at the caching unit, but Farber requires it"). Such conclusory, unsupported arguments are entitled to little or no weight and do not move the needle for limitation [1g]. *See Cisco Systems, Inc. v. K. Mizra LLC*, 2024 WL 3841809 at *6 (Fed. Cir. 2024) ("Attorney argument cannot support the Board's finding.").

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber discloses limitation [1g].

h. Limitation [1h]: "receiving a request at the caching unit for one of the multimedia assets from a broadcasting unit; and"

The Petition contends that Farber inherently discloses limitation [1h]. Pet. 26–27. The Petition refers to its analysis for limitation [1g], where Farber discloses storing the multiplexed MPEG Transport Stream output signal in the storage/playout device when "playout is desired at a later time." *Id.* at 27 (citing Ex. 1003, 7:62–8:3). The Petition argues that a POSITA would recognize in Farber that "desiring" playout "at a later time" inherently discloses "receiving a request" for that stored multimedia asset from a broadcast network. *Id.* (citing Ex. 1002 ¶ 128). We agree.

Mr. Lipoff correctly notes that Farber discloses feeding the multiplexed output signal to "a cable television network or a satellite network" for broadcast. Ex. 1002 ¶ 128 (citing Ex. 1003, 5:9–12, 6:21–25). Patent Owner agrees. Resp. 25 (citing Ex. 1003, 6:21–25). Mr. Lipoff also makes the point that, because Farber's system is designed for broadcast over a satellite or cable network for distribution to a plurality of subscribers (Ex. 1003, 5:9–12, Fig. 4), when playout is desired at a later time a POSITA would recognize that Farber's system necessarily communicates with the broadcast distribution network to receive a playout request for the stored multimedia file (Figure 5). Ex. 1002 ¶ 128 (citing Ex. 1003, 8:22–25). We are persuaded because Mr. Lipoff's explanation is consistent with

Farber's disclosures, the language recited in limitation [1h], and the skill level of a POSITA in the art of delivering multimedia content over a distribution network, such as cable and satellite broadcast networks. *See* Resp. 18 (POSITA has "knowledge of remote desktop protocols, access controls, networking protocols, and communications, including TCP/IP-based standards, software design, distributed systems, and network equipment configuration").

Patent Owner's argument, that "Farber teaches away from using Element 1h and element 1i" because "all triggers are sen[t] from Audio Encoder to MPEG encoder and other systems," is unavailing. Resp. 25 (citing Ex. 2039 ¶¶ 105–107). First, teaching away is a concept relevant to obviousness, not anticipation. Second, "[w]e will not read into a reference a teaching away . . . where no such language exists." *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006). Moreover, a reference teaches away only if a person of ordinary skill, upon reading the reference, would be discouraged from following the path that was taken by the patentee. *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Patent Owner does not provide a cogent explanation for how or why a POSITA, knowing that Farber discloses storing multimedia assets until playout is desired at a later time over a cable or satellite broadcast network, would be discouraged from receiving a playout request from a cable or satellite broadcast network for a stored multimedia asset, in accordance with limitation [1h].

Patent Owner's reference to Farber's use of a "trigger" to initiate multimedia asset generation for playout, rather than a "'request' . . . explicitly initiated by users" (Resp. 25, 56), does not address the Petition's contention or the recited claim language. The Petition contends that a "desire" to playout a stored multimedia asset "at a later time" inherently discloses the need for "*receiving a request at the caching unit for one of the multimedia assets from a broadcasting*

unit," i.e., Farber's audio broadcast system necessarily receives a request for a stored multimedia asset from a cable television or satellite network when playout is desired at a later time via broadcast to a plurality of subscribers. Patent Owner's teaching away argument does not address the specific language in Farber on which the Petition relies to frame its contention of inherent disclosure, and otherwise improperly reads limitations from the '441 patent specification into the claim language. Resp. 25, 26 (citing Ex. 2039 ¶¶ 105–107). For example, Dr. Hernandez testifies that "given Farber's 'Triggering' system, it will ***not*** suggest the use of web-services such as HTTP and any RESTUL APIs that are stateless," a contention not commensurate with the scope of limitation [1h]. That "Farber discloses no request whatsoever" (Resp. 56) is not the issue; the issue is whether a POSITA would recognize that Farber inherently discloses such a request when playout is desired at a later time.

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber inherently discloses limitation [1h].

i. Limitation [1i]: responsive to receiving the request, the caching unit providing the multimedia asset to the broadcasting unit in the MPEG transport stream format.

The Petition establishes that Farber discloses limitation [1i].

Farber discloses that "multiplexer 48 serves to combine the audio feed from the audio encoder and the associated encoded MPEG transport stream from the MPEG encoder" and then "feeds the multiplexed signal out for broadcast in the form of a video transport stream to a distribution system" such as "a cable television network or a satellite network provider." Pet. 28 (quoting Ex. 1003, 5:9–12, 6:18–25). Referring to Figure 5, Farber states "system 140 is capable of simultaneously ***transmitting***, playing out, or ***storing*** such content for later playback ***utilizing the methods disclosed above***." *Id.* (quoting Ex. 1003, 8:22–25

(emphasis added)). Farber's disclosures support the Petition's mapping onto limitation [1i].

Patent Owner responds as follows:

> Farber discloses a "Finite State Machine" that triggers behaviors, such as Audio and Image multiplexing. However, such events provide an issue on being "responsive to receiving a request," as the caching unit is Element 140, and Element 150 is just the hard drive (See analysis for 1a)
>
> if such request is received by Element 140, Farber will have disclose a) all boxes such as 145, 147, 149, and 148 receive the request and respond to it, and b) that the functions from the triggered system are not disrupted.

Resp. 25–26. Patent Owner's Response is unclear, not consistent with Farber or the claim language recited in limitation [1i], and does not address the contention in the Petition.

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that Farber inherently discloses limitation [1i].

3. Conclusion as to Ground 1

We find that Farber discloses, expressly or inherently, limitations [1a] and [1c]–[1i], but not limitation [1b]. Because Farber does not expressly or inherently disclose limitation [1b], we determine the Petition does not demonstrate by a preponderance of the evidence that independent claim 1 of the '441 patent is unpatentable as anticipated by Farber. Because claim 7 depends from claim 1, we determine the Petition does not demonstrate by a preponderance of the evidence that claim 7 of the '441 patent is unpatentable as anticipated by Farber.

D. Claims 1, 2, and 7 Are Obvious Over Farber-Vermeulen (Ground 2)

The Petition contends claims 1, 2, and 7 are obvious over the combination of Farber and Vermeulen. Pet. 29–33.[16] The Petition asserts in particular that, to the extent Farber may not disclose limitations [1b] ("*determining that there is sufficient storage space for the multimedia asset . . .*") and [1h] ("*receiving a request . . . for one of the multimedia assets from a broadcasting unit*"), the Farber-Vermeulen combination does so. *Id.* 29–31. Patent Owner opposes, contending that Farber-Vermeulen does not teach or suggest limitation [1b], and relying on its arguments attempting to distinguish Farber from claim 1, addressed above. Resp. 26–28. For the reasons given below, we determine the Petition demonstrates by a preponderance of the evidence that claims 1, 2, and 7 are obvious over Farber-Vermeulen.

1. Farber-Vermeulen Teaches Limitations [1b] and [1h]

Vermeulen discloses a "distributed, web-services based storage system . . . configured to receive . . . a given client request for access to a given data object." Ex. 1005, Abstract (code 57). "The system may also include storage nodes configured to store replicas of the objects." *Id.* Vermeulen discloses "Nodepicker 130" which acts as "storage node selection logic." *Id.* at 14:59–60. Prior to storing data, nodepicker 130 "develop[s] a write plan" and "ensure[s] that the write plan has a reasonable chance of succeeding—for example, that the nodes 160

[16] In Ground 2, the Petition argues that, "to the extent Farber does not disclose, on its own, Elements 1b and/or 1h, the combination of Farber and Vermeulen above can be used with Grounds 3-5 below to further render obvious dependent claims 3-9." Pet. 31. Thus, the Petition addresses claim 7 in Ground 2, and Patent Owner responds to claim 7 in Ground 2. Resp. 27–28.

specified in the write plan are in fact operational and are expected to have sufficient storage resources available to accept the object." *Id.* at 14:65–15:8.

The Petition contends Vermeulen's nodepicker 130 teaches limitation [1b]. Pet. 29–30 (citing Ex. 1002 ¶ 130). The Petition persuasively argues that Vermeulen's nodepicker acts as storage node selection logic to ensure the nodes have sufficient storage resources available for storing object data, such as text, audio, video, or other types of digital data. Pet. 29 (citing Ex. 1005, 7:2–3, 14:65–15:8,); *see also* Ex. 1005, 6:62–67 ("text data, executable program code, audio, video or image data, or any other type of digital data"). We are also persuaded by Mr. Lipoff's cited testimony, which articulates the rationale for combining Farber and Vermeulen in the context of determining sufficiency of storage space for multimedia assets:

> POSITAs would have been motivated to combine Farber and Vermeulen because it is advantageous to check for available space in storage prior to storing data, such as Farber's transport streams which can be stored in storage device 150 when "playout is desired at a later time." POSITAs would recognize that not checking for sufficient space in a storage device could lead to file system errors and storage failure, negatively impacting the user's experience when playback is later "desired" by the user.

Ex. 1002 ¶ 130 (citing Ex. 1003, 7:62–8:3). We find Mr. Lipoff's testimony to be consistent with the disclosures in Farber and Vermeulen, the skill level of a POSITA, and Dr. Hernandez's testimony on the same point. *See* Ex. 2039 ¶ 132 ("lack of space will generate corrupted outputs and difficult errors to resolve").

We are further persuaded by the Petition's argument that "POSITAs would have had a reasonable expectation of success in combining Farber with Vermeulen's disclosure of checking for available space because the process of checking storage space was well-known and commonly implemented in computer

systems." Pet. 30 (citing Ex. 1002 ¶ 131); *see also* Ex. 2039 ¶ 135 ("determining a safe 'threshold' to keep as reserved space is fundamental in multimedia systems"). Farber also states that its storage can be "any suitable storage medium such as DVD, CD ROM, hard disk, or any other suitable read only or rewritable storage medium." Ex. 1003, 8:1–3. We find persuasive Mr. Lipoff's testimony that these are all forms of memory a POSITA would have known how to evaluate for available space. Ex. 102 ¶ 131. Thus, we find Vermeulen's nodepicker storage selection logic would have been compatible with the system of Farber, and a POSITA would have had a reasonable expectation of success implementing such a well-known technique in Farber's system. *Id.*

Patent Owner's Response regarding limitation [1b] is a one-sentence argument that "communication with Vermeulen, a REST-style web services architecture[,] is complex and given the changes and difficulties to either convert Vermeulen into an FSM (Finite State Machine) and attempt to combine, chances of success are minimal." Resp. 27 (citing Ex. 2039 ¶ 103). Dr. Hernandez testifies in one sentence that Farber's HTML or XML-formatted "Templates" are "not 'User Interfaces that includes Video.'" Ex. 2039 ¶ 103. Neither the Response nor Dr. Hernandez elucidates Patent Owner's conclusory assertion challenging the Petition's rationale for combining Farber and Vermeulen. "[O]ne cannot show non-obviousness by attacking references individually where . . . the rejections are based on combinations of references." *In re Keller*, 642 F.2d 413, 426 (CCPA 1981). Moreover, the test for obviousness is what the combined teachings of the references would have suggested to a POSITA, "not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference." *Id.* at 425; *see also KSR*, 550 U.S. at 420 ("any need or problem known in the field of endeavor at the time of invention and addressed by the patent

can provide a reason for combining the elements in the manner claimed"). Patent Owner's conclusory, unsupported argument is unavailing as a matter of law.

Regarding the receipt of a request for a multimedia asset recited in limitation [1h], the Petition points out that Vermeulen teaches "multimedia applications generate and use application data of various types and formats, such as . . . images, audio and video data, among others." Pet. 30 (quoting Ex. 1005, 1:26–28). To store the data, Vermeulen discloses "a storage model for providing data storage to users as a service, such as a web service" that "may include a web services interface *configured to receive*, according to a web services protocol, *client requests for access to data objects*." *Id.* at 30–31 (emphasis added) (quoting Ex. 1005, 4:50–51, 2:17–19). We are again persuaded by Mr. Lipoff's testimony that a POSITA would have been motivated to combine Farber and Vermeulen, "because receiving a 'request' for a stored stream when playback is 'desired' is a simple solution for enabling retrieval of such data." Pet. 31 (quoting Ex. 1002 ¶ 133). We further agree with Petitioner that a POSITA would have recognized that communicating such a request allows users to specify data for delivery, which improves the user experience. *Id.* (citing Ex. 1002 ¶ 133).

Patent Owner does not address limitation [1h]. Resp. 27 (stating only "Farber in view of Vermeulen does not teach or suggest Element 1h.").

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that the combination of Farber and Vermeulen (Ground 2) discloses, teaches, suggests, or otherwise renders obvious limitations [1b] and [1h].

2. Remaining Limitations and Conclusion regarding Claims 1, 2, and 7

Apart from the arguments discussed above, Patent Owner does not present additional arguments directed to the other limitations recited in claims 1 and 2. *See*

Resp. 26–27. For claim 2, we have reviewed the Petition's argument and evidence that Vermeulen discloses retrieving media files using a REST (Representation State Transfer) API (Application Programming Interface) as recited in the second alternative wherein clause of the claim. Pet. 32–33 (citing Ex. 1002 ¶ 137; Ex. 1005, 5:9–15). We find the cited portions of Vermeulen disclose, teach, or suggest the limitations recited in claim 2 for the reasons stated in the Petition. *Id.*

Claim 7 depends from claim 1 and recites "*wherein the video for the custom HTML interfaces includes video taken from the media file*." The Petition explains that Farber's custom HTML user interface includes various assets, including assets for the "channel name 18, album art 20, title track label and artist information 22, [and] promotional/advertising panels 24, 28." Pet. 28 (quoting Ex. 1003, 3:42–44). "These assets may include, but are not limited to, textual information, ***motion picture video***, [or] graphics" and are "for the purpose of conveying information to the viewer either graphically, textually, or through video." *Id.* (quoting Ex. 1003, 3:30–31, 3:52–54). Farber also states that "data source 44 may include, for example, information to support" those assets, which would include video files for motion picture video assets. *Id.* at 28–29. Thus, the Petition argues that Farber teaches video for the HTML interface can be taken from a motion picture video file. *Id.* at 28–29.

Patent Owner addresses claim 7 in Ground 2 by cross-referencing its argument that Farber-Vermeulen does not disclose, teach, or suggest limitation [1b], an argument we find unavailing as discussed above. Resp. 28 (cross-referencing "Supra VIII.A.2," i.e., pages 26–27 of the Response).

For the reasons given above, including the reasons given in Ground 1 finding that Farber discloses limitations [1a] and [1c]–[1i], we determine the Petition establishes by a preponderance of the evidence that the combination of

Farber and Vermeulen discloses, teaches, suggests, or otherwise renders obvious claims 1, 2, and 7 of the '441 patent.

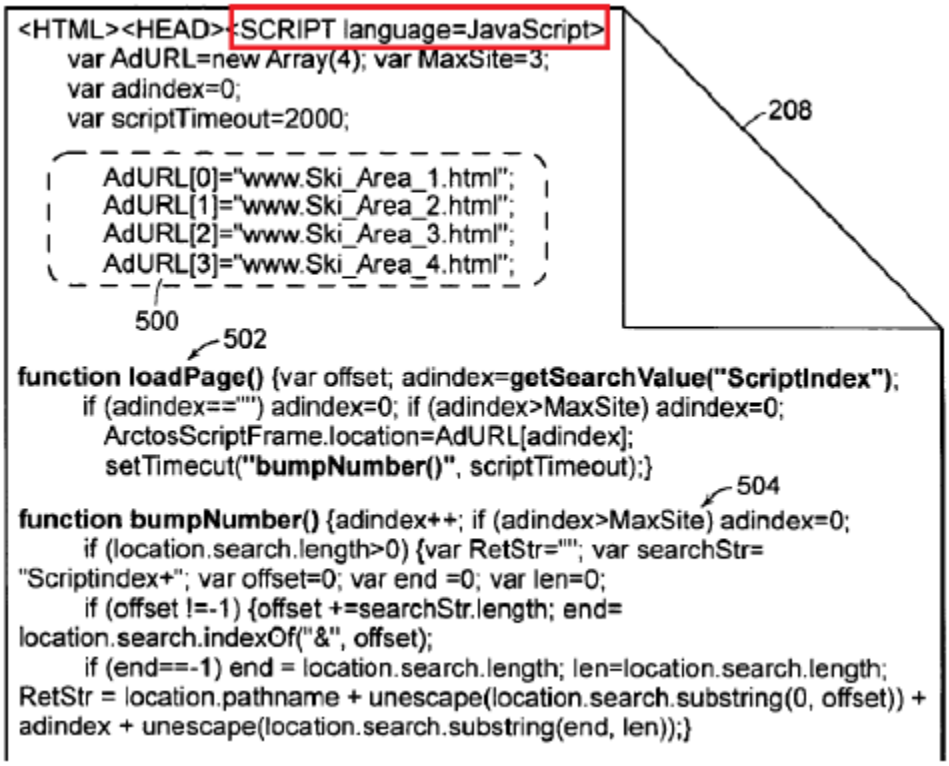
E. Claims 3–6, 8, and 9 are Obvious (Grounds 3–5)

1. Claim 3 is Obvious Over Farber and Pavlovskaia

Claim 3 depends from claim 1 and recites "*wherein creating the custom HTML user interface for each media file is performed using Javascript*."

The Petition contends that claim 3 of the '441 patent is obvious over Farber and Pavlovskaia. Pet. 33–36. Pavlovskaia discloses a "web content server" for delivery of multimedia channels, where the web content server "generates a set of instances" that cycle through a "set of web pages." *Id.* at 33–34 (quoting Ex. 1006, 3:5–7, 3:63–66). "For each new channel a corresponding master HTML page is defined" that controls the interface. *Id.* at 34 (quoting Ex. 1006, 12:7–9, 12:33–34); *see also* Ex. 1006, 12:15–16 ("Each browser is initialized at its own corresponding master HTML").

The annotated HTML page of Pavlovskaia Figure 5 is reproduced below from the Petition:



Pet. 34 (annotated, partial view Ex. 1006, Fig. 5). The HTML page of Figure 5 includes floating frame element 508 (not shown) and three functions 502, 504, and 506 (not shown) for cycling the URLs in array 500, which are written in a script language. *Id.* (citing Ex. 1006, 16:20–55). Pavlovskaia states "[t]he ***script language shown is JavaScript***," and when executed, "cycl[es] the image displayed" in the embedded frame. *Id.* at 35 (citing Ex. 1006, 16:56–62 (emphasis added)).

Based on the above-cited evidence, we find the Petition establishes that Pavlovskaia discloses a custom HTML user interface created using JavaScript for each media file, as recited in claim 3.

Patent Owner's Response contains three unsupported and unexplained sentences that read unrecited limitations into claim 3. Resp. 28–29. We agree with Petitioner that claim 3 recites only that HTML user interface creation is performed "*using JavaScript*," without specifying that "JavaScript needs to show that the

DOM Objects are transformed and parsed such that media files are involved," as argued by Patent Owner. *Compare* Resp. 28 *with* Reply 15. The Response also does not explain the conclusory assertion that Pavlovskaia is "not easily combinable" with Farber. Resp. 29; Reply 15. As Petitioner points out, and as explained above in our discussion of claim limitation [1e], Farber discloses creating a custom user interface using HTML, and the Response does not dispute that embedding JavaScript into HTML was well-known in the art. Reply 15 (citing Ex. 1002 ¶ 142).

We are persuaded by the Petition and cited testimony of Mr. Lipoff that a POSITA "would have been motivated to combine Farber and Pavlovskaia because it was understood that JavaScript could be used to make a web page more dynamic." Pet. 35 (citing Ex. 1002 ¶ 141). Mr. Lipoff gives an example of using Pavlovskaia's JavaScript®-created "'carousel' of rotating pages for display in order to show a rotating set of artist information graphics (like pictures of the artist/band)" as disclosed in Farber. *Id.* We are also persuaded by the Petition and cited testimony of Mr. Lipoff that a POSITA "would have had a reasonable expectation of success in combining Farber with Pavlovskaia's use of JavaScript because JavaScript was well-known in the art and could be readily embedded within HTML." *Id.* (citing Ex. 1002 ¶ 142; Ex. 1003, 5:50–54; Ex. 1001, 7:5–7). Patent Owner does not contend otherwise.

For the reasons given above, including the reasons given in Ground 1 finding that Farber discloses limitation [1e], we determine the Petition establishes by a preponderance of the evidence that the combination of Farber and Pavlovskaia (Ground 3) discloses, teaches, suggests, or otherwise renders obvious claim 3 of the '441 patent.

2. Claims 4, 5, and 8 Are Obvious Over Farber and Davis

Claims 4 and 5 each depend from claim 1 and recite: 4. "*encoding each of the media files at a specified bit rate;*" 5. "*encoding each of the media files using a H.264 encoder*." Claim 8 depends from claim 1 and recites "*using an AC-3 file format for audio content in the media file*."

The Petition establishes that Davis discloses using "a H.264 and AAC codec, with encoding profile 131b ***configured for a 1.5 Mbit/s bit rate video and 128 Kbit/s audio***" for an "Internet based video streaming" distribution channel. Pet 36 (citing Ex. 1008, 3:21–41). The Petition also establishes Davis discloses a distribution channel that "might require video files in Moving Picture Experts Group (MPEG) 2 format ***with Dolby Digital Audio Coding 3 (AC-3) audio***." *Id.* at 38 (citing Ex. 1008, 3:25–28). We find the Petition establishes that Davis discloses encoding each media file at a specified bit rate using a H.264 encoder and an AC-3 file format for audio content in the media file, as recited in claims 4, 5, and 8. *Id.* at 36–38. The Petition further establishes a sufficient motivation to combine Farber and Davis with a reasonable expectation of success for the reasons given in the Petition. *Id.* at 36–39 (citing Ex. 1002 ¶¶ 145–146, 149–150, 153–154).

Patent Owner provides a cryptic, conclusory response addressing claim 4:

> Since Claim 1 is not met, plus Davis needs to be able to handle "triggers" to replace the "Image Encoder" and the "MPEG Encoder" in Farber (Ex1002 at FIG 5 and FIG 4).
>
> The analysis by Petition, 37 is flawed, as considers the inexistent component "MPEG Video Encoder" as part of the combination. Stating that

Resp. 29. Patent Owner further argues that combining Farber and Davis would require "undue experimentation to add 'Transport Streams," and that "such

combination cannot be guarantee[d] and will provide unexpected results." *Id.* at 29–30. Patent Owner's arguments misapply the principles of undue experimentation and unexpected results and are otherwise unavailing.

We agree with Petitioner that Patent Owner's Response does not "explain why Davis's 'specified bit rate' or Davis's 'H.264' video encoder or Davis's 'AC-3' audio encoder could not be used with the 'MPEG encoder' or 'Audio Encoder' of Farber." Reply 16. As Petitioner and Mr. Lipoff do explain, Patent Owner "does not dispute that H.264 is one of the most commonly used MPEG video codecs and can be readily used with a number of container formats, such as the MPEG TS format used by Farber." *Id.* (citing Ex. 1002 ¶¶ 149–150). We further agree with Petitioner and Mr. Lipoff that (i) the Response does not dispute that "AC-3 is one of the most commonly used audio codecs," and (ii) claim 8 does not require use of a H.264 encoder because it depends from claim 1 not claim 5. *Id.* (citing Ex. 1002 ¶¶ 153–154; Resp. 30). As a result, an H.264 encoder would not complicate the use of AC-3 file format as Patent Owner contends. *Id.* Patent Owner's Sur-Reply does not respond to Petitioner's Reply arguments or address claims 4, 5, and 8. Sur-Reply *generally*.

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that the combination of Farber and Davis (Ground 4) discloses, teaches, suggests, or otherwise renders obvious claims 4, 5, and 8 of the '441 patent.

3. Claims 6 and 9 Are Obvious over Farber and Fogel

Claims 6 and 9 each depend from claim 1 and recite: 6. "*wherein the custom HTML user interfaces are configured to be rendered using a Webkit browser*;" 9. "*wherein the custom HTML user interfaces are configured so that multiple custom*

HTML user interfaces of the multimedia asset can be retrieved using a web rendering engine."

The Petition establishes that Fogel discloses a "web interface module" is "a web rendering engine, also known as HTML rendering engine. For example, the skilled person ***can use the engine Webkit***." Pet. 39 (citing Ex. 1009 ¶¶ 62–64). The Petition also establishes that Fogel discloses "the interface module is a ***web rendering engine***, also known as HTML rendering engine." *Id.* at 40 (citing Ex. 1009 ¶ 64). The Petition further establishes a sufficient motivation to combine Farber and Fogel with a reasonable expectation of success for the reasons stated in the Petition. *Id.* at 39–41 (citing Ex. 1002 ¶¶ 157–158, 161–162).

Patent Owner argues, without citation or support, that "Farber will have to add a network card, a web service engine, and a mechanism to use HTTP Protocol with the 'Data Carousel,' and that such a mechanism 'will not be easy to integrate with Farber.'" Resp. 30–31.

We agree with Petitioner that Patent Owner's Response does not provide an explanation for why Farber's interfaces, which use HTML, "cannot be retrieved and rendered using a WebKit browser, which the POR does not dispute was commonly known to POSITAs." Reply 16. As stated previously, the Petition relies on Farber's disclosure of HTML coded interfaces, and does not require an HTTP server as asserted by Patent Owner. Patent Owner's Sur-Reply does not respond to Petitioner's Reply arguments or address claims 6 and 9. Sur-Reply *generally*.

For the reasons given above, we determine the Petition establishes by a preponderance of the evidence that the combination of Farber and Fogel (Ground 5) discloses, teaches, suggests, or otherwise renders obvious claims 6 and 9 of the '441 patent.

F. Asserted Obviousness of Claims 10–26 (Grounds 6–13)

The Petition relies on Avellan as the primary reference in support of the contentions that the subject matter of claims 10–26 of the '441 patent would have been obvious to a POSITA (Grounds 6–9, 11, 12, and 13) and that claim 26 is anticipated by Avellan (Ground 12'). Pet. 41–75. Patent Owner opposes and contends the Petition does not establish that Avellan discloses, teaches, suggests, or otherwise renders obvious all of the limitations recited in independent claims 10, 25, and 26. Resp. 31–49, 56–65. For the reasons given below, we determine the Petition does not establish by a preponderance of the evidence that claims 10–26 of the '441 patent would have been obvious to a POSITA or that claim 26 is anticipated by Avellan. We begin with a discussion of claim 10.

1. Discussion of Claim 10[17]

Independent claim 10 recites a different method from that recited in claim 1. Claim 10 recites a caching server "*receiving from a content provider, a request for at least one media stream for playback on a broadcast media channel wherein the at least one media stream includes a plurality of multimedia items of different types*" (limitation [10b]), such as audio and video. Ex. 1001, 7:32–39, 15:35–42. Claim 10 also recites "*obtaining content corresponding to the plurality of multimedia items from at least one source*" ([limitation [10c]), where the source of multimedia content for the requested media stream is a browser-rendered web page using the content: "*rendering a web page by a browser using the content*" (limitation [10d]). *Id.* at 15:43–46.

[17] The analysis of independent claim 10 applies equally to independent claims 25 and 26, which recite limitations identical to limitations [10d], [10e], and [10f] discussed herein.

Limitation [10d] relies on antecedent basis to recite a rendering function where a web browser renders a web page to obtain "*the content*," i.e., to obtain the requested media stream content recited in limitations [10b] and [10c]. The '441 patent describes an exemplary custom user interface and browser-rendering engine that "can be used to retrieve a set of screens [screen captures] from the web-service being contacted" such that "the method can capture a video file from another rending function, which can create a sequence of screens that can be used to generate a video file." *Id.* at 7:19–29. The custom user interface can include "JavaScript, CSS, and HTML content files that can be rendered using a browser using WebKit (e.g. PhantomJS or Safari) or any other browser-rendering engine compatible with HTML4/5 or any future HTML version." *Id.* at 7:5–9. Thus, to obtain the requested media stream content comprising a plurality of different types of multimedia items for playback on a broadcast media channel, the media stream content is captured from a web page using a browser-rendering engine.

Claim limitation [10e] recites a process step in the creation of the media stream video file for broadcast playback:

> *generating a temporal sequence of screen captures of the rendered web page, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time*;

Id. at 15:46–52. Limitation 10[e] has three parts. First, the screen captures from the browser rendering function are generated in timed sequence. Second, each screen capture in the sequence must define all the multimedia content of the rendered web page at a given time. *Id.* at 7:26–29. Third, at least two adjacent screen captures in the temporal sequence must show a "*dynamic change*" of at least a portion of the requested media stream content over time, i.e., from time t_1 to t_2.

The '441 patent states:

> As an example, if an audio content file is used such as an MP3 file, this function can create a video file from all the screens captured by 526 [Fig. 5]. Those screens are generated by calling a URL where the web-service is associated and *creating a video file with the input audio and the captured screens*. The output format can be an MPEG Transport Stream file that can be retrievable or streamed to the multicasting embodiment.

Id. at 7:35–39 (emphasis added). In the described example, the system uses a browser-rendering engine to capture a sequence of web page screens of streaming video for generating a video file and assembling a multimedia file, e.g., a multiplexed audio/video file.

Limitation [10f] recites using the temporal sequence of screen captures to assemble the requested media stream: "*assembling the at least one media stream using the temporal sequence of screen captures*." *Id.* at 15:53–54. Thus, as described in the '441 patent, a video file is created from the temporal sequence of web page screen captures of the media stream content, as recited in limitation 10[e], which are used to assemble the requested multimedia stream for delivery to "*to the content provider for broadcast on the broadcast media channel*" (limitation 10[g]). The video file created from the sequence of web page screen captures is multiplexed with the audio file in a format compatible with the content provider's broadcast-media channel, such as an MPEG Transport Stream file. *Id.*

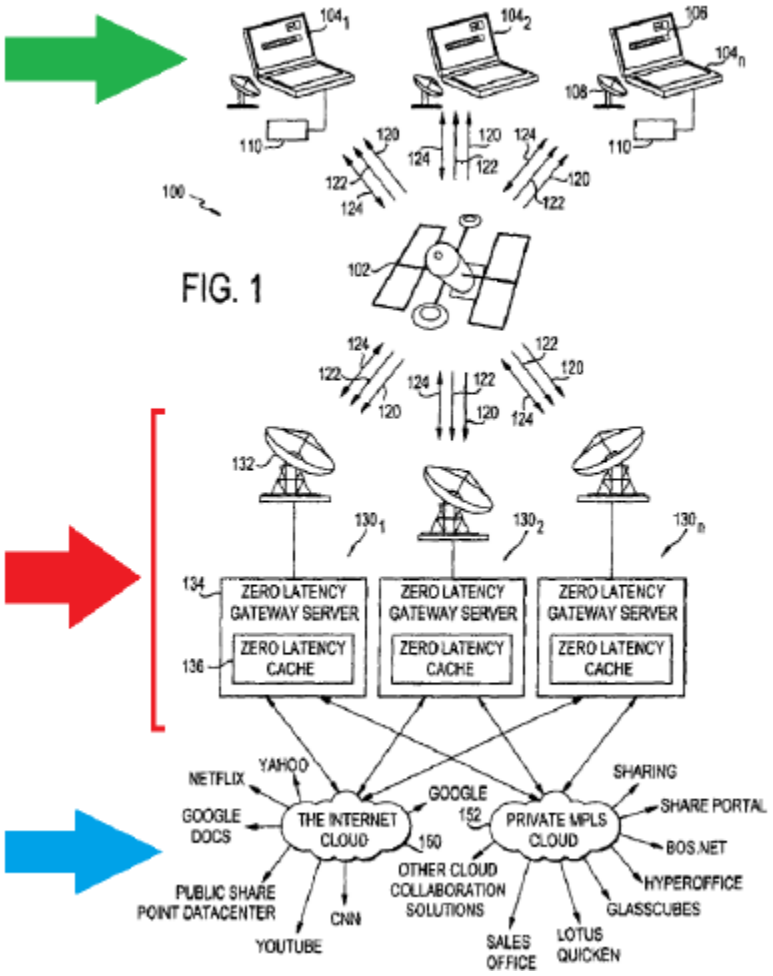
The Petition acknowledges that during prosecution of a parent application to the '441 patent, "Applicant overcame the Examiner's rejection by adding [limitations [10d], [10e], and [10f]] calling them 'an important distinction between the claimed solution and the cited references.'" Pet. 2–3 (citing Ex. 1015, 62–69). The Petition contends, however, that "these key elements are explicitly found in Avellan." *Id.* at 3. We disagree.

For the reasons that follow, we determine the Petition has not established by a preponderance of the evidence that Avellan discloses, teaches, suggests, or otherwise renders obvious limitations [10d]–[10f] and the corresponding limitations recited in independent claims 25 and 26.

2. Analysis of Limitations [10d] –[10f] In View of Avellan

a. Avellan's System

Avellan Figure 1 depicts Avellan's system 100 for providing high-definition (HD) internet in a low latency environment, reproduced below as annotated in the Petition. *See* Ex. 1004, 2:16–18, 3:10–12.



Pet. 45. (citing ex. 1004, Fig.1). System 100 communicates content from networks 150 and 152 (blue arrow) to virtual browser 106 on user computers 104_1–

104_n (green arrow) via gateway platforms 130_1–130_n (red arrow) and satellite broadcast device 102. *Id.* at 3:24–37. Gateway platforms 130_1–130_n include satellite antenna 132 and gateway server 134 with cache 136. *Id.* at 3:64–66.

Avellan discloses that web pages have information, "such as a video, streaming information, or an animated display." *Id.* at 5:5–7. The gateway server in Figure 1 "continuously captures images of the web page until it detects a repeating pattern of information" and "will be certain to capture all the information on the web page even if that information continues over a period of time." *Id.* at 5:7–12. Avellan discloses an exemplary configuration that uses browser software to render web page information—"a web-to-HD video protocol . . . to capture and transmit images/audio of a web page, including a full multimedia web page, regardless of its size or original format (e.g. HTTP)." *Id.* at 5:16–19. The captured web page images are compressed "into a compressed digital video format that can be sent to the user computer 104 for display in the browser 106." *Id.* at 5:19–22.

b. Analysis of the Petition's Mapping of Avellan Onto Limitations [10d]–[10f]

The Petition contends Avellan discloses that a media stream request is received by the gateway platform, "which then obtains the content and processes it using the disclosed browser software, and then provides the requested media stream to the content provider for broadcast." Pet. 44–45 (citing Ex. 1004, Fig. 1). The Petition also contends the requested media stream in Avellan's system can include a plurality of multimedia items of different types, for example broadcast music and television channel content including "news sites like CNN, BBC, newspaper, live streaming television feeds, movies, music downloads, or ESPN." *Id.* at 4 (citing Ex. 1004, 4:56–65, 8:24–27), 45–46 (citing Ex. 1004, 8:18–21, 8:25–31). The Petition, however, does not cite to a disclosure in Avellan or to

expert testimony that adequately explains *how* Avellan's disclosed browser software processes the media stream content in accordance with claim limitations [10d]–[10f].

The Petition's argument addressed to limitation [10d] ("*rendering a web page by a browser using the content*") consists of one brief sentence: "Avellan teaches Element 10d." *Id.* at 48. The Petition quotes one sentence from Avellan in support of the argument:

> Avellan states that "the browser software 106 resides at the gateway 134" and "may rely upon the computing power and very high-speed connection of the gateway server 134 to resolve and ***render pages, images, and documents*** from the networks 150, 152."

Id. (citing Ex. 1004, 4:56–65); *see also id.* at 3 (citing Ex. 1004, 4:56–65, Fig. 1). The Petition does not explain the quote from Avellan, nor does the Petition cite to expert testimony in support of the assertion that Avellan teaches limitation [10d]. *Id.* Left unaddressed is how the requested *media stream* content, not just web page images, documents, and other information, is supposedly captured from a web page browser as recited in limitation [10d]. The Petition argues in conclusory fashion that Avellan teaches "gateway 134 includes browser software 106 that renders web pages using the content obtained from the Internet and/or a private network (*i.e.*, networks 150 and 152)." *Id.* The Petition does not explain where or how Avellan discloses a browser-rendering function that captures media stream content from a web page on the Internet or private cloud network, nor does the Petition cite expert testimony in support of that contention. *Id.*

For limitation [10e] ("*generating a temporal sequence of screen captures of the rendered web page, where . . . at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time*;"), the Petition relies on the same unsupported presumption that Avellan's system captures media stream

content from a rendered web page. *Id.* at 48–50. The Petition quotes from Avellan: "The gateway server 134 then images those web pages (which are typically in an HTTP format) to a video or image frame format." *Id.* at 48–49 (citing Ex. 1004, 4:65–5:4). The Petition contends that, because Avellan's system "***continuously captures images of the web page***" and "will be certain to capture all the information on the web page ***even if that information continues over a period of time***," Avellan teaches generating a temporal sequence of screen captures of dynamically changing media stream content from the rendered web page. *Id.* at 49 (citing Ex. 1002 ¶ 168; Ex. 1004, 5:5–10, 5:10–12). The Petition further contends that the example of streaming a hockey game referenced in Avellan supports the contention:

> For example, *if a streaming hockey game is being rendered*, a screen capture at Time 1 followed by a screen capture at Time 2 will illustrate a dynamic change in that game, such as the movement of players on the ice between Time 1 and Time 2—*i.e.*, a dynamic change of at least a portion of the content over time.

Id. at 49–50 (emphasis added) (citing Ex. 1002 ¶ 168). We are not persuaded.

We agree with Patent Owner that the Petition does not explain how Avellan's browser-rendering web-to-HD video protocol uses "the content from the plurality of multimedia items" of the requested media stream (limitations [10b] and [10c]) to render a web page and capture media stream content as recited in limitations [10d] and [10e]. Resp. 34. The "*content*" being rendered and captured in limitations [10d] and [10e] comprises "*at least one media stream for playback . . .* [that] *includes a plurality of multimedia items of different types*" ([10b, [10c]), which is streaming content composed of "input audio and the captured screens" (video frames) that can be streamed for playback. Ex. 1001, 7:35–39. A "web page" is not a "*media stream*," and Avellan discloses rendering a web page using a

web-to-HD video protocol to obtain static web page images and content, not dynamically changing media stream content. Resp. 61 ("A media stream is continuous, temporally ordered multimedia data transmitted for playback, not static file transfer."); Ex. 1004, 5:16–32 (description of web-to-HD video protocol "used to capture and transmit images/audio of a *web page*, including a full multimedia *web page*") (emphases added).

The Petition and Mr. Lipoff's cited testimony presume, but do not establish by a preponderance of the evidence, that Avellan teaches a web browser that renders a web page to capture media stream content, such as a streaming hockey game. Neither the Petition nor Mr. Lipoff's cited testimony explains how the hockey game media stream is captured in Avellan, nor do they cite sufficient disclosure in Avellan to support such a contention. At the oral hearing, Counsel for Petitioner directed our attention to the above-referenced citations in Avellan columns 4 and 5, as well as to Avellan column 5, lines 12–22 and column 8, lines 18–21, 34–36 in support of Petitioner's contention. Tr. 8:7–17:9. Avellan column 5, lines 12–22 discloses that captured web page images are compressed into a "digital video format that can be sent to the user computer 104 for display in the browser 106," which is not a disclosure of capturing media stream content as further discussed below. Ex. 1004, 5:16–22. The cited disclosure in column 8 references "the main [web] page of ESPN presents the same information to all viewers, which may include *scores of hockey games* and basketball games," and where "that *page of the website* can also be sent in the broadcast mode." *Id.* at 8:32–36 (emphases added). We see no support for Petitioner's argument that Avellan is taking a series of screen captures of moving content such as video or live-streaming. Tr. 8:6–8.

We are persuaded by Patent Owner's argument that Avellan does not assemble a media stream of multimedia items using the recited screen captures. *See* Resp. 64–65; Sur-Reply 25–26. We agree with Patent Owner that the plain language of the claim requires more than transmitting individual media items. *Id.* Broadcasting a series of web page screen shots from a broadcaster's web page of hockey game scores is not the same thing as capturing the streaming audio/video content of the hockey game. Tr. 15:5–18. As Counsel for Patent Owner explained during the oral hearing:

> So here we capture the critical distinction of capturing an image of a CNN web page is categorically different from transmitting a live CNN video stream. A static web page screenshot is not a media stream. This is not a close technical question. It's a categorically distinction -- categorical distinction between two entire types of systems.
>
> Petitioner argues that Avellan in columns 8, lines 8 -- 18 to 21 discloses live-streaming television feeds by listing CNN, BBC, and ESPN. This arguably is textually incorrect. Those lines of Avellan list the broadcasters as suitable sites, meaning websites that Avellan's . . . gateway can screenshot. Avellan captures images from those websites. It does not stream live television. It transmits static images of web pages that happen to belong to television broadcasters.

Tr. 63:8–19. We are persuaded that Avellan teaches a different form of web page browser rendering and content distribution than that described and claimed in claims 10–26 of the '441 patent. The record better supports Patent Owner's argument that Avellan transmits the multimedia items separate from any media stream assembled from screen captures. Resp. 64–65; Sur-Reply 25–26.

We are further persuaded that Avellan does not provide "*at least one media stream to the content provider for broadcast on the broadcast media channel*" as recited in limitation [10f]. Instead Avellan compresses the web page, which must be decompressed for display in the user computer's remote browser. Resp. 34, 45;

Ex. 1004, Abstract (code 57), 5:16–22, 7:56–58, 8:42–57). Thus, we agree with Patent Owner that Avellan "teaches imaging websites, compressing those images, and then broadcasting those compressed images to user computers." Resp. 63. To be clear, Avellan teaches that web pages are rendered in a browser such that web page images and content is captured, but not media stream content, and Petitioner has not established that Avellan discloses, teaches, or suggests rendering a web page to capture media stream content.

Rather, the Petition itself establishes that Avellan teaches a different process for capturing and delivering content derived from a web site of a broadcaster "live streaming television feeds, movies, music downloads, or ESPN." Ex. 1004, 8:18–21. The Petition relies on Avellan's teaching that in broadcast mode a media stream is converted to a compressed video file and separately downloaded and stored:

> In the broadcast mode, the gateway server 134 retrieves the desired data from the networks 150, 152, captures that data (including audio) to a video (or image) frame format, compresses that video data and stores the compressed video data to the gateway 130 at the cache 136.

Pet. 47 (quoting Ex. 1004, 8:42–46); *see also id.* at 3 (citing Ex. 1004, 4:65–67, 8:42–56); Resp. 34. The Petition does not address the implication that Avellan's teaching of direct conversion, compression, and storage of audio/video data is not consistent with the claimed browser-rendering function or generating a temporal sequence of dynamically changing media stream screen captures from a web page to assemble a video file as recited in limitations [10d]–[10f]. In short, Avellan's system "at best, provides 'compressed video files' not media streams." Resp. 34.

Avellan further teaches that websites have interactive features referred to as "tag data or action points," such as "selectable buttons, scroll bar, browsing bar . . . hover links, menus, selectable links, or data entry points." Ex. 1004, 5:33–39.

"When the website is captured in a video frame format, those action points are imaged, *but their functionality is not retained in the video images*." *Id.* at 5:39–42 (emphasis added). Avellan teaches the creation of "a tag file" that maps the action point locations on the captured web page and "is associated with the compressed video file based on the domain name for the imaged page," such that "the video is synchronized with the tag file so that the proper action points are associated with the video images." *Id.* at 5:42–47; *see also id.* at 11:36–37 ("The tag file and compressed video file can also include information . . . which facilitates synchronization of the tag file to the video."). Avellan concludes:

> Accordingly, when the user views the video file on the browser 106, the user retains all the functionality of the website. Thus, the video file and the tag file cooperate to emulate or reproduce the website at the browser 106, so it appears to the user that the web page is actually being displayed in the browser 106.

Id. at 5:47–52 (emphasis added).

We agree with Patent Owner's observation that "Avellan associates a 'tag file' with a 'video compressed file' hence needs to decompress the content to extract the tag file and the images." Resp. 34; Ex. 1004, 2:64–3:6, 5:39–52, 11:36–39. The use of such tag files to synchronize web page action points with the compressed web page video file is not consistent with Petitioner's contention that Avellan's system captures dynamically changing media stream content from a browser-rendered web page for broadcast on a broadcast media channel. Avellan's discussion of tag files undermines Petitioner's argument, because it shows that Avellan has other ways to transmit the media file apart from capturing a screen in image format that is then assembled to a media stream. *Id.*

Petitioner's Reply gives short shrift to Patent Owner's arguments that Avellan does not teach limitations [10d]–[10f] and repeats the same quotations in

Avellan from the Petition. Reply 19 (citing Ex. 1004, 4:56–65, 4:65–67). Petitioner's Reply argument addressed to limitation [10d] is one sentence that criticizes Patent Owner for allegedly not explaining why it is "'highly questionable' how rendering—which is a process commonly known to POSITAs—is performed" in Avellan's system. Reply 19–20 (citing Resp. 34). Petitioner's argument misses the mark because Petitioner bears the burden of proof, not Patent Owner. Petitioner's argument, moreover, misapprehends Patent Owner's point: "Avellan can only broadcast images created from webpages; and although a web page may point to a 'live stream' via a 'web player' object, there is no live streaming broadcasting in Avellan directly, as images captured from such a live stream no longer constitutes a live stream." Sur-Reply 24–25 (citing Ex. 1004, 4:55–67, 5:1–15).

3. Conclusion Regarding Claims 10–26 (Grounds 6–13)

In sum, Petitioner does not establish by a preponderance of the evidence that Avellan teaches limitations [10d]–[10f]. The Petition relies only on Avellan for teaching limitations [10d]–[10f] and the corresponding limitations recited in independent claims 25 and 26. The secondary references—Pavlovskaia, Durante, Ma, Suzuki, Gangadharan, and Wannamaker—are relied on for teaching other claim limitations. Pet. 56–61 (claims 19–23), 62–68 (claims 15–17, 24), 68–74 (claims 25, 26). All other challenged claims in Grounds 6–13 depend directly or indirectly from independent claim 10. Therefore, for the reasons given above, we determine Petitioner has not established by a preponderance of the evidence that claims 10–26 are obvious over Avellan in combination with the secondary references asserted in Grounds 6–13.

III. CONCLUSION

We conclude Petitioner has established by a preponderance of the evidence that claims 1–9 of the '441 patent are unpatentable. We further conclude Petitioner has not established by a preponderance of the evidence that claims 10–26 are unpatentable. In summary:

Claims	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 7	102	Farber		1, 7
1, 2, 7	103	Farber, Vermeulen	1, 2, 7	
3	103	Farber, Pavlovskaia	3	
4, 5, 8	103	Farber, Davis	4, 5, 8	
6, 9	103	Farber, Fogel	6, 9	
10–16, 18–23	103	Avellan, Pavlovskaia-PCT		10–16, 18–23
15	103	Avellan, Pavlovskaia-PCT, Durante		15
16	103	Avellan, Pavlovskaia-PCT, Ma		16
17		Avellan, Pavlovskaia-PCT, Suzuki		17
24	103	Avellan, Pavlovskaia-PCT, Gangadharan		24
25	103	Avellan, Wannamaker		25
26	102	Avellan		26
26	103	Avellan, Wannamaker		26
Overall Outcome			1–9	10–26

IV. ORDER

In consideration of the foregoing, it is hereby

ORDERED that, Petitioner has shown by a preponderance of the evidence that claims 1–9 of the '441 patent are unpatentable; and

FURTHER ORDERED that, Petitioner has not shown by a preponderance of the evidence that claims 10–26 of the '441 patent are unpatentable; and

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

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