

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENIUS SPORTS LTD.,
Petitioner,

v.

SPORTSCASTR INC. d/b/a PANDA INTERACTIVE,
Patent Owner.

IPR2024-01311
Patent 11,039,218 B1

Before THU A. DANG, JON M. JURGOVAN, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BELISLE, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)
Denying Petitioner's Motion to Exclude
37 C.F.R. §§ 42.64(c), 42.71

I. INTRODUCTION

Genius Sports Ltd. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 16–30 (“Challenged Claims”) of U.S. Patent No. 11,039,218 B1 (Ex. 1009, “the ’218 patent”). SportsCastr Inc. (d/b/a PANDA Interactive) (“Patent Owner”) filed a Preliminary Response. Paper 7. The parties also filed supplemental preliminary briefing concerning discretionary denial issues. *See* Papers 8, 9. The Board instituted an *inter partes* review of claims 16–30 of the ’218 patent on all grounds of unpatentability alleged in the Petition. Paper 10 (“Institution Decision” or “Dec.”).

After institution, Patent Owner filed a Response. Paper 16 (“PO Resp.”). Petitioner filed a Reply. Paper 24 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 27 (“PO Sur-reply”). We held an oral hearing in this case on December 18, 2025, and a transcript of the hearing is included in the record. Paper 46 (“Tr.”).

Petitioner also filed a motion to exclude certain evidence, namely, paragraph 312 of Exhibit 2001 and Exhibits 2006–2016. Paper 35 (“Motion to Exclude” or “Exclude Mot.”). Patent Owner filed an opposition. Paper 37 (“Exclude Opp.”).

We have jurisdiction under 35 U.S.C. § 6 (2024). Under the applicable evidentiary standard, Petitioner has the burden to prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2024). “Preponderance of the evidence means the greater weight of evidence, evidence which is more convincing than the evidence which is offered in opposition to it.” *United States v. C.H. Robinson Co.*, 760 F.3d 1376, 1383 (Fed. Cir. 2014) (internal quotations

omitted). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons discussed below, we determine Petitioner has established by a preponderance of the evidence that claims 16–30 of the ’218 patent are unpatentable. We also deny Petitioner’s Motion to Exclude.

II. BACKGROUND

A. Real Parties in Interest

Petitioner and Patent Owner each identifies itself as a real party in interest. Pet. 3; Paper 4, 1.

B. Related Matters

The parties collectively identify the following matters as involving the ’218 patent:

SportsCastr Inc. v. Genius Sports Ltd., No. 2:23-cv-00471 (E.D. Tex.) (“related parallel proceeding”); and *SportsCastr Inc. v. Sportradar Group, AG et al.*, 2:23-cv-00472 (E.D. Tex.). Pet. 4; Paper 4, 1.

The parties also collectively identify the following *inter partes* review proceedings before the Board as involving either the ’218 patent or a patent related thereto: IPR2024-01305 (U.S. Patent No. 10,805,687 B2 (“the ’687 patent”)), IPR2024-01307 (the ’687 patent), IPR2024-01308 (U.S. Patent No. 10,425,697 B2 (“the ’697 patent”)), IPR2024-01309 (the ’697 patent), and IPR2024-01310 (the ’218 patent). Pet. 3–4; Paper 4, 1; Paper 19, 1; Paper 39, 1. We note that these same three patents were the subject of six later-filed requests for *inter partes* review by another petitioner, all of which were discretionarily denied. *See* IPR2025-00265, Paper 19 (the ’697 patent); *see also* IPR2025-00266 (the ’697 patent); IPR2025-00268 (the ’687

patent); IPR2025-00269 (the '687 patent); IPR2025-00273 (the '218 patent); IPR2025-00275 (the '218 patent).

C. The '218 Patent

The '218 patent is titled “Systems, Apparatus and Methods for Rendering Digital Content Relating to a Sporting Event With Online Gaming Information.” Ex. 1009, code (54). The '218 patent relates to allowing low-latency viewing of broadcast digital content streams of live events, and synchronization of event information with viewed streams. *Id.* at 2:66–3:15, 13:17–22. Figure 1A of the '218 patent is reproduced below.

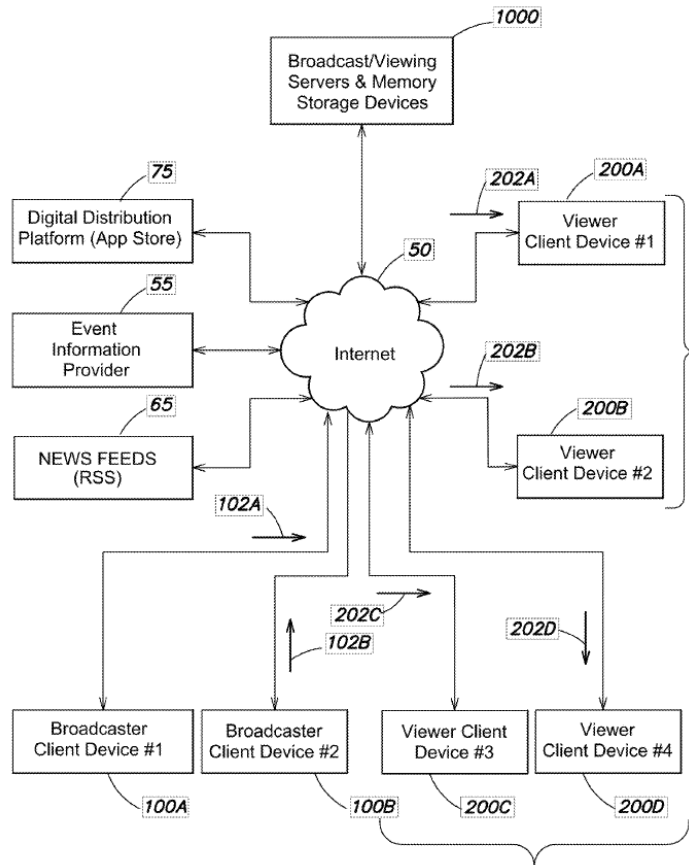


FIG. 1A

Figure 1A is a block diagram of a system facilitating live streaming of digital content from multiple broadcasters to multiple viewers. *Id.* at 11:29–32.

The system shown in Figure 1A includes broadcaster client devices 100A and 100B, viewer client devices 200A–200D, broadcast/viewing servers and memory storage devices 1000, event information provider 55, one or more news feeds 65, and digital distribution platform 75, all coupled together via Internet 50. Ex. 1009, 14:61–15:2. In Figure 1A, first broadcaster client device 100A provides first live stream of digital content 102A, and copies 202A and 202B of digital content 102A are received by viewer client devices 200A and 200B, respectively. *Id.* at 15:32–37. Similarly, second broadcaster client device 100B provides second live stream of digital content 102B, and copies 202C and 202D are received by viewer client devices 200C and 200D, respectively. *Id.* at 15:37–42. Broadcast/viewing servers and memory storage devices 1000 may retrieve news and/or event information germane to a live stream of digital content from news feeds 65 and event information provider 55 and convey the relevant news and/or event information to one or more client devices. *Id.* at 15:42–49.

Figure 2, reproduced below, is a block diagram of broadcast/viewing servers and memory storage devices 1000 in the system of Figure 1A. Ex. 1009, 11:36–38, 18:40–53.

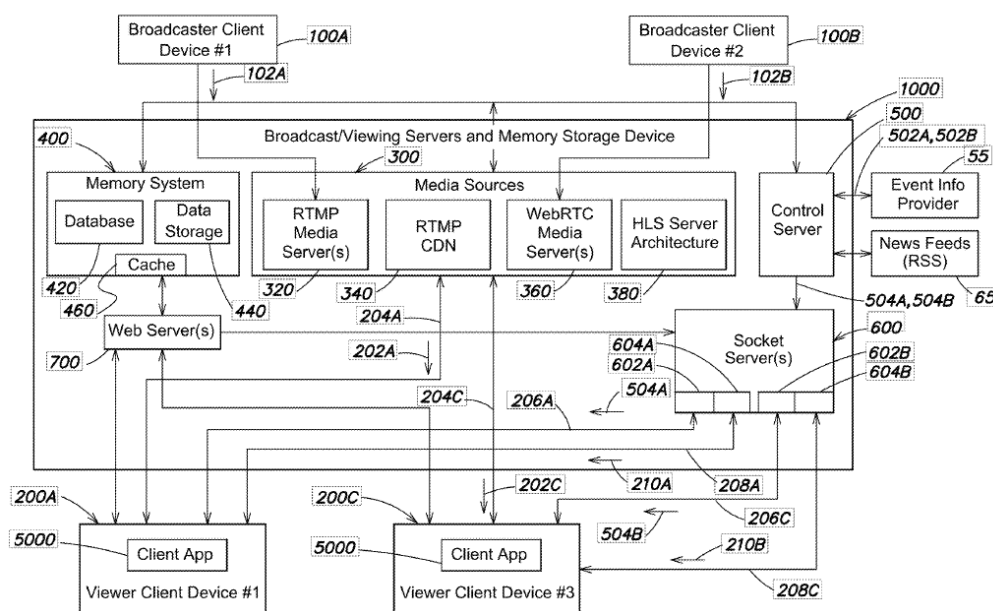


FIG. 2

Figure 2 is a block diagram of servers/memory storage devices 1000. *Id.* at 11:36–38, 18:40–53.

Figure 2 shows servers/memory storage devices 1000 including, in relevant part, a plurality of media sources 300, control server 500, one or more web servers 700, and socket server 600. *Ex.* 1009, 18:64–20:30. Media sources 300 receive live streams of digital content (102A, 102B) from broadcaster client devices (100A, 100B) and provide copies (202A, 202C) to viewer client devices (200A, 200C). *Id.* at 19:26–32, 21:14–40. Web server 700 supports an application programming interface to facilitate communication between servers/memory storage devices 1000 and client devices. *Id.* at 18:64–19:6. Control server 500 retrieves news and/or event information germane to the live streams of digital content (102A, 202C) from news feeds 65 and event information provider 55. *Id.* at 19:57–64. Socket servers 600 facilitate communication of synchronized event information retrieved by control server 500 to broadcaster and viewer client

devices. *Id.* at 20:16–36. For example, control server 500 may retrieve first score information 504A for a first live sporting event and provide it to socket server 600, which establishes event socket 602A. *Id.* at 21:56–22:4. First viewer client device 200A connects to event socket 602A via a URL, and first score information 504A is transmitted to first viewer client device 200A. *Id.* at 22:5–25.

D. Illustrative Claim

Petitioner challenges claims 16–30 of the '218 patent. Pet. 5. Claims 16 and 21 are independent, claims 17–20 depend, directly or indirectly, from claim 16, and claims 22–30 depend, directly or indirectly, from claim 21. Ex. 1009, 57:35–60:34. Independent claims 16 and 21, reproduced below with Petitioner's numerical limitation designations, are illustrative of the claimed subject matter.

16. [16.0] A method for controlling a first viewer client device to display a video relating to a first sporting event together with first online gaming information germane to the first sporting event, the method comprising:

[16.1] A) transmitting at least one first instruction to the first viewer client device to cause the first viewer client device to receive a first copy of a first stream of digital content relating to the first sporting event via a first video communication channel; and

[16.2] B) transmitting at least one second instruction to the first viewer client device to cause the first viewer client device to receive the first online gaming information via a first event information communication channel between a first event socket of at least one socket server and the first viewer client device, [16.3] wherein the first event information communication channel is different than the first video communication channel.

Ex. 1009, 60:35–51.

21. [21.0] A method, comprising:

[21.0] A) transmitting first instructions to a first client device that includes at least one first display to cause the at least one first display of the first client device to render a first video relating to a first sporting event and render online gaming information relating to the first sporting event, wherein the first instructions transmitted in A) cause the first client device to:

[21.1] receive, on a first communication channel, first digital content corresponding to the first video relating to the first sporting event;

[21.2] render, on the at least one first display of the first client device, the first video relating to the first sporting event based on the first digital content received on the first communication channel;

[21.3] receive, on a second communication channel different from the first communication channel, second digital content corresponding to the online gaming information; and

[21.4] render, on the at least one first display of the first client device, the online gaming information based on the second digital content received on the second communication channel.

Ex. 1009, 61:24–47.

E. Evidence of Record

Petitioner relies on the following published patent application evidence. Pet. 5–7.

Name	Reference	Exhibit
Herzog	U.S. Patent Appl. Pub. No. 2015/0163379 A1, published June 11, 2015	1015
Ellis	U.S. Patent Appl. Pub. No. 2014/0229992 A1, published August 14, 2014	1016
Spivey	U.S. Patent Appl. Pub. No. 2016/0036910 A1, published February 4, 2016	1017

Petitioner also relies on Declarations of Stephen B. Wicker, Ph.D. (Ex. 1001; Ex. 1064; Ex. 1067) to support its contentions that the challenged claims are unpatentable.

Patent Owner relies on Declarations of Aviel Rubin, Ph.D. (Ex. 2001; Ex. 2041) in support of its contentions that Petitioner has not shown that the challenged claims are unpatentable.

Dr. Rubin was cross-examined by Petitioner, and a transcript of his deposition was entered into the record. Ex. 1063. Dr. Wicker was cross-examined by Patent Owner, and a transcript of his deposition was entered into the record. Ex. 2042.

F. Asserted Challenges to Patentability

The Board instituted *inter partes* review of claims 16–30 of the ’218 patent on the following grounds asserted by Petitioner. Dec. 2, 58; Pet. 6–7.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis	Ground Name
16–30	103 ¹	Ellis, Spivey	1
21, 22, 27, 28	102	Herzog	2A
25, 26, 30	103	Herzog, Ellis	2B
16–20, 23, 24, 29	103	Herzog, Spivey	2C

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the challenged claims of the ’218 patent have an apparent effective filing date after March 16, 2013, the AIA versions of §§ 102 and 103 apply. Ex. 1009, codes (22), (60), (63). Our determinations and findings herein would not change if the pre-AIA provisions applied.

III. PATENTABILITY

A. *Applicable Law*

Petitioner challenges the patentability of claims 16–30 of the ’218 patent on grounds that the claims either are anticipated under 35 U.S.C. § 102 or would have been obvious under 35 U.S.C. § 103 in light of various references, namely Ellis, Spivey, and Herzog. “In an [*inter partes* review], the petitioner has the burden from the onset to show *with particularity* why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)) (emphasis added). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

1. *Anticipation*

To serve as an anticipatory reference under 35 U.S.C. § 102, “the reference must disclose each and every element of the claimed invention, whether it does so explicitly or inherently.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). “The identical invention must be shown in as complete detail *as is contained in the . . . claim.*” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) (emphasis added). The elements must be arranged as required by the claim, “but this is not an ‘*ipsissimis verbis*’ test,” i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990) (citing *Akzo N.V. v. United States Int’l Trade Comm’n*, 808 F.2d 1471, 1479 & n.11 (Fed. Cir. 1986)).

2. *Obviousness*

A claim is unpatentable under 35 U.S.C. § 103 “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103; *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of 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 skill in the art; and (4) when of record, objective evidence of obviousness or non-obviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Secondary considerations may include the following: “commercial success, long felt but unsolved needs, failure of others, etc.” *Id.* The totality of the evidence submitted may show that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming a combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions.

Id. at 417. To reach this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.* “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). The level of ordinary skill in the art also may be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Relying on Dr. Wicker’s testimony, Petitioner contends that the relevant artisan would have had “at least a bachelor’s degree, or equivalent, in electrical engineering, computer engineering, computer science, or a related field or an equivalent number of years of working experience, and

one to two years of experience in networking environments, including at least some experience with live-streaming network architecture.” Pet. 17–18 (citing Ex. 1001 ¶¶ 72–76). Petitioner also states that “[a]dditional education or experience in related fields could compensate for deficits in the above qualifications.” Pet. 18.

Patent Owner contends that the relevant artisan would have had “a bachelor’s degree in electrical engineering, computer engineering, computer science, or equivalent degree and, in addition, approximately two years of work experience with Internet video streaming, Internet communication, and related protocols.” PO Resp. 12.

Neither party argues that the outcome of this case would differ based on our adoption of any particular definition of the level of ordinary skill in the art. We apply Patent Owner’s definition of the relevant artisan because, based on the record, this proposal is most consistent with the ’218 patent and the asserted prior art, and is supported by the testimony of both Dr. Wicker and Dr. Rubin (*see* Ex. 1001 ¶¶ 72–76; Ex. 2001 ¶¶ 96–98). We note that we would reach the same determination under Petitioner’s formulation of the level of ordinary skill.

C. Claim Construction

We construe claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips*, 415 F.3d at 1312–13; *see CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (There is “a ‘heavy presumption’ that a claim term carries its ordinary and customary meaning.”). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317.

1. “socket” / “event socket”

Claim 16 includes the term “event socket.” Ex. 1009, 60:35–51.

Petitioner argues that the relevant artisan “would have understood a ‘socket’ to be a uniquely addressable communication endpoint on a server where first event information is provided to a [viewer client device] VCD.” Pet. 32 (citing Ex. 1001 ¶ 189). Petitioner argues that the relevant artisan also would have understood an “event socket,” in turn, to be “a socket where information about one sporting event is provided to a VCD.” Pet. 32–33.

Patent Owner does not include a construction for any claim term in its “Claim Construction” section (PO Resp. 12), and states that “[e]xcept for the ‘event socket’ term . . . , Patent Owner agrees [with Petitioner] that no terms require construction and construes all other terms consistent with their plain and ordinary meaning.” *Id.* However, in its prior art arguments against

Spivey, Patent Owner argues that “Spivey’s ‘topic queues’ do not disclose or suggest an ‘event socket’ because those topic queues are not ‘uniquely addressable communication endpoints.’” *Id.* at 2. Citing to Dr. Rubin, Patent Owner contends that “Spivey’s topic queues are neither ‘uniquely addressable’ nor ‘communication endpoints.’” *Id.* (citing Ex. 2001 ¶ 232).

Accordingly, Petitioner’s proposed plain meanings of “socket” and “event socket” (Pet. 32–33) are not disputed by Patent Owner. PO Resp. 2, 12. In fact, by arguing that Spivey’s topic queues are neither “uniquely addressable” nor “communication endpoints,” Patent Owner appears to adopt Petitioner’s proposed plain meaning of “socket” as a “uniquely addressable communication endpoint.” *Id.* As Patent Owner acknowledged during Oral Argument, “I don’t think there’s any dispute of what we mean by socket, a uniquely addressable communication endpoint.” Tr. 73:10–12.

Based on the foregoing, we construe each of “socket” and “event socket” to have its plain and ordinary meaning, where the relevant artisan would have understood “socket” to mean “a uniquely addressable communication endpoint on a server,” and “event socket” to mean “a socket where information about one sporting event is provided to a viewer client device (VCD).”² We further address these terms below in Section III.D.3.

² During Oral Argument, Patent Owner argued, *for the first time*, that the District Court’s construction of “event socket” “should be applied equally here.” Tr. 73:13–76:24 (referring to Ex. 1069). The Court adopted *Petitioner’s* (Defendant’s) proposed definition of “event socket” as “a socket dedicated to a particular event” (Ex. 1069, 11–15), although in its summary of constructions, labeled “event socket” as being “a socket dedicated to a single event” (i.e., “single” event versus “particular” event) (*id.* at 26). Regardless, in the context of this case and this Decision, we find no meaningful difference between these articulations and Petitioner’s plain

2. “online gaming information”

Claim 16 recites “first online gaming information germane to the first sporting event,” and claim 21 recites “online gaming information relating to the first sporting event.” Ex. 1009, 60:35–51, 61:24–47.

Patent Owner argues that, due to the structure of the claim, “online gaming information” is a distinct subset of “event information.” PO Resp. 41. But this barely moves the definitional needle, if at all, because being a “subset” would still allow for nearly complete overlap (i.e., merely not the exact same scope). Patent Owner additionally contends that such *gaming* information would be “e.g., event information relevant to online gaming, such as odds, wins and losses, or other information relevant to placing [bets].” *Id.* (citing Ex. 2001 ¶ 240). But this too barely moves the definitional needle, because this provides merely *examples of an example* of “online gaming information,” and includes everything “relevant” to “online gaming” or to “placing [bets].” *See* Tr. 41:6–13 (Patent Owner’s counsel arguing, “[‘online gaming information’] is *broader* than just video games because online gaming information could also *include* something like sports betting.” (emphases added)).

It does not appear that the ’218 patent defines or describes “online gaming information.” The closest references in the specification are two mentions of “game-related activities” that are said to include “online gaming, board games, chess matches, [and] role-playing games.” Ex. 1009, 4:31–32, 8:16–17. These references do not support Patent Owner’s assertion that “online gaming information” should be construed as *requiring* a

meaning of “event socket” as “a socket where information about one sporting event is provided to a VCD” (Pet. 32–33).

relationship to placing bets. Dr. Rubin does not provide any evidence to support the opinion that online gaming information would be “information relevant to placing bets.” Ex. 2001 ¶ 240.

In district court, Patent Owner argued that the term “online gaming information” should be interpreted “consistent with its plain meaning . . . e.g., *information used for, or relevant to, gaming conducted over the Internet.*” Ex. 1069, 25. Petitioner accepted that proposed meaning as the “plain and ordinary meaning” (*id.*), and the court thus construed “online gaming information” to have its plain and ordinary meaning (*id.* at 27). We agree with the court that online–gaming–information, a very broad term, should have its plain and ordinary meaning, which is “*information used for, or relevant to, gaming conducted over the Internet.*” This aligns with Patent Owner’s argument in this case that the term means “*event information relevant to online gaming [i.e., gaming conducted over the Internet]*, such as odds, wins and losses, or other information relevant to placing [bets].” PO Resp. 41 (citing Ex. 2001 ¶ 240). This also aligns with Petitioner’s arguments during oral argument: “Online gaming information, any information related to the game, the ongoing game that’s being streamed [online] would constitute online gaming information, so for example, the score, the weather, how fast the engine is revving in a racing event.” Tr. 69:7–15; *see* Tr. 70:23–71:4 (“[Judge:] So we should just look at online simply being if it’s coming over the Internet, it’s online; and if it’s gaming, it’s relating to the game[?] [Petitioner’s counsel:] Yes, Your Honor. [Judge:] So there’s our online gaming information[?] [Petitioner’s counsel:] Yes, Your Honor.”).

Based on the foregoing, we construe “online gaming information” to have its plain and ordinary meaning, where the relevant artisan would have understood this term to mean “information used for, or relevant to, gaming conducted over the Internet.” We further address this term below in Section III.D.3.

3. *Additional Claim Terms*

Petitioner contends that “[t]he claim terms of the ’218 [patent] should be given their plain and ordinary meaning” as understood by the relevant artisan. Pet. 7. Petitioner does not propose a construction, express or otherwise, for any other claim term. *See generally* Pet. 7.

As discussed above, Patent Owner does not include a construction for any claim term in its “Claim Construction” section (PO Resp. 12), and states that “[e]xcept for the ‘event socket’ term [discussed above] . . . , Patent Owner agrees [with Petitioner] that no terms require construction and construes all other terms consistent with their plain and ordinary meaning.” *Id.*

After considering the arguments and evidence presented during trial, we determine that we do not need to construe any other terms in order to resolve the dispute between the parties. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Obviousness of Claims 16–30 over the Combination of Ellis and Spivey (Ground 1)

Petitioner contends claims 16–30 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Ellis and Spivey. Pet. 23–55; Pet. Reply 2–16. Patent Owner disputes Petitioner’s contentions. PO Resp. 2–6, 24–50; PO Sur-reply 1–14. For the reasons expressed below, and based on the complete record before us, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 16–30 would have been unpatentable as obvious over the combination of Ellis and Spivey. We turn first to overviews of Ellis and Spivey.

1. Overview of Ellis (Ex. 1016)

Ellis is titled “Systems and Methods for Providing Enhanced Sports Watching Media Guidance,” and discloses systems and methods for accessing and displaying sports-related media content. Ex. 1016, codes (54), (57). Figure 1 of Ellis, reproduced below, illustrates an interactive media system. *Id.* ¶¶ 15, 39.

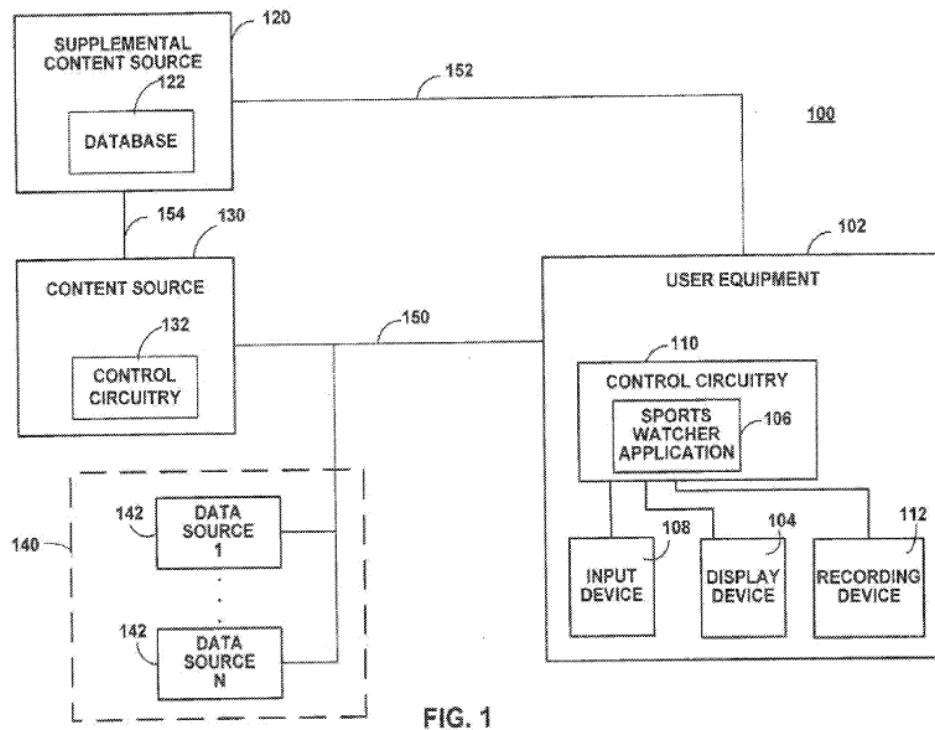


Figure 1 is a block diagram illustrating interactive media system 100. *Id.* ¶¶ 15, 39.

As shown above in Figure 1, interactive media system 100 includes user equipment 102, content source 130, supplemental content source 120, and data sources 140. *Ex. 1016* ¶ 39. User equipment device 102 receives media content, such as video broadcast programming, from content source 130 via communication path 150. *Id.* ¶¶ 39–40, Fig. 1. User equipment device 102 also receives content, such as real-time sports scores and game summary information, from supplemental content source 120 via communication path 152. *Id.* ¶¶ 39, 41, Fig. 1. Data sources 140 provide data for applications running on user equipment 102. *Id.* ¶ 46.

We further discuss below the disclosures of Ellis in connection with the parties' arguments.

2. Overview of Spivey (Ex. 1017)

Spivey is titled “Techniques to Broadcast Live Event Data in Real-Time,” and discloses a system for broadcasting live event data in real-time. Ex. 1017, codes (54), (57). According to Spivey, its techniques “increase the speed at which live event data (e.g. sports scores and breaking news), are broadcast to mobile devices by using topic queues and open duplex communication connections, among other innovative techniques.” *Id.* ¶ 27. Figure 1 of Spivey is reproduced below. *Id.* ¶¶ 3, 34.

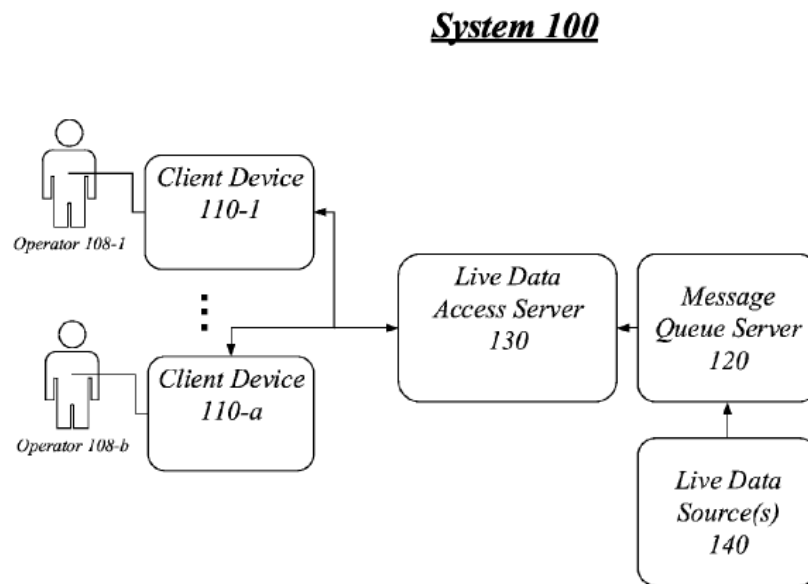


FIG. 1

Figure 1 illustrates system 100 for broadcasting live event data. *Id.* ¶¶ 3, 34.

As shown above in Figure 1, system 100 includes client devices 110-1 through 110-a, message queue server 120, and live data access server 130 (also “LDAS”) coupled via one or more networks. Ex. 1017 ¶ 34. Message queue server 120 (also “MQS”) receives live data from live data source(s) 140 and processes the live data so that it can be provided to client

devices 110-1 through 110-a. *Id.* ¶¶ 35–37. Live data access server 130 interfaces between message queue server 120 and client devices 110-1 and 110-a. *Id.* ¶ 38.

Figure 4 of Spivey, reproduced below, illustrates operating environment 400. Ex. 1017 ¶¶ 6, 53.

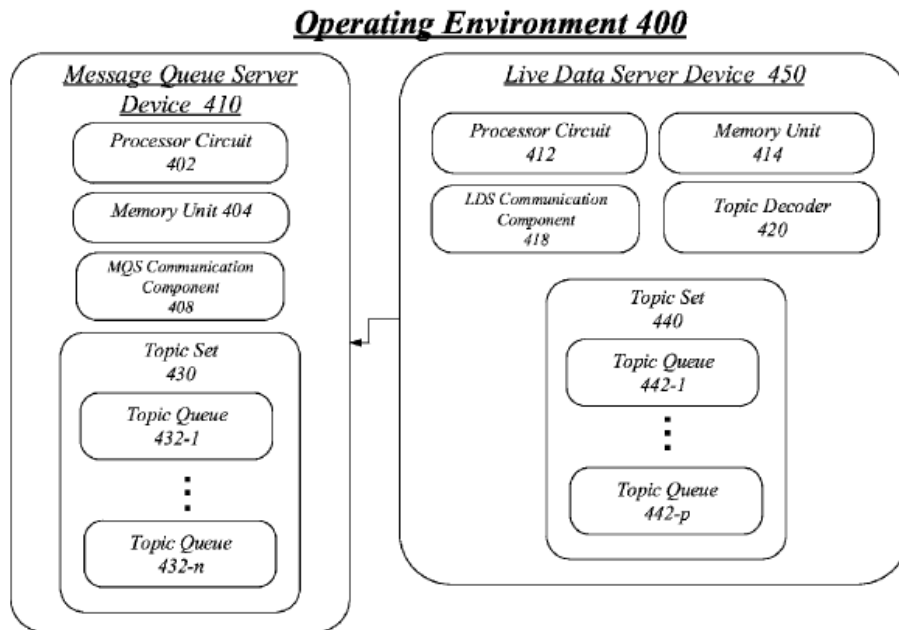


FIG. 4

Figure 4 illustrates operating environment 400.
Id. ¶¶ 6, 53.

As shown above in Figure 4, in operating environment 400, message queue server 120 is implemented as message queue server device 410 and live data server device 450. Ex. 1017 ¶ 53. Message queue server device 410 (“also “MQSD”) includes communication component 408, topic set 430, and topic queues 432. *Id.* ¶ 54. Live data server device 450 includes live data server communication component 418 that allows live data server device 450 to receive live data and transmit it to message queue server device 410. *Id.* ¶ 55. Live data server device 450 also includes topic

decoder 420, topic set 440, and topic queues 442. *Id.* ¶ 56. In an embodiment, message queue server device 410 “may be implemented as [an open-source message broker software,] RABBITMQ™ server” which “facilitates topic queues that receive published messages and push the messages to clients that have subscribed to the topic queues.” *Id.* ¶ 58.

In another embodiment, “[o]perating environment 500 may comprise . . . live data access server 510, which may be a representative example of live data access server 130,” wherein “[l]ive data access server 510 may include one or more functional components, for example, . . . live data access (LDA) communication component 520, . . . interface component 530, and . . . subscription component 540.” Ex. 1017 ¶¶ 7, 59–60, Fig. 5. LDA communication component 520 may operate to receive connection requests from client devices 110 and to authenticate the requesting client. *Id.* ¶ 62. Interface component 530 may generally provide an interface to allow an operator to request and authenticate a connection to live data access server 510, to select one or more topics relating to live events for subscription, and to receive and display the live data as it is received by message queue server 120. *Id.* ¶ 63. Subscription component 540 may receive the selected topic(s) from interface component 530 for a particular connected client, and then communicate with message queue server 120 to subscribe to the topic queues that correspond to the selected topic. *Id.* ¶ 64.

We further discuss below the disclosures of Spivey in connection with the parties’ arguments.

3. *Independent Claims 16 and 21*

The parties dispute three aspects of Petitioner’s Ellis-Spivey challenge to independent claims 16 and 21, namely (1) whether the relevant artisan

would have had a rational reason to combine the teachings of Ellis and Spivey to achieve the methods of claims 16 and 21; (2) whether the combination of Ellis and Spivey teaches an “event socket” as recited in, for example, limitation 16.2; and (3) whether the combination of Ellis and Spivey teaches “online gaming information” as recited in, for example, claims 16 and 21. *See* PO Resp. 24 (Patent Owner identifying these three issues). We address these disputes *seriatim*.

a) Reason(s) to Combine the Teachings of Ellis and Spivey

The parties dispute whether the relevant artisan would have had a rational reason to combine the teachings of Ellis and Spivey to achieve the methods of independent claims 16 and 21. *See* Pet. 23–28; PO Resp. 40–50; Pet. Reply 13–16; PO Sur-reply 10–14.

Petitioner’s proposed combination of the teachings of Ellis and Spivey involves substituting Spivey’s server devices that use websocket connection technology for Ellis’s supplemental content source. Pet. 23–28 (citing, *inter alia*, Ex. 1001 ¶¶ 106–115; Ex. 1016 ¶¶ 39, 41, 47, 155–156, Fig. 1; Ex. 1017, ¶¶ 27–28, 35, 43, 61, 74, 92, 96, Fig. 4). In particular, Petitioner argues that the relevant artisan would have implemented Ellis’s supplemental content source 120 with Spivey’s live data server device 450 and message queue server device 410, such that data would have been delivered using a websocket connection instead of HTTPS. *Id.* (citing same). Ellis describes that its supplemental content source 120 provides real-time data feeds with sports-related information, such as sports scores. *See, e.g.*, Ex. 1016 ¶ 41. Similarly, Spivey describes that its system including live data server device 450 and message queue server device 410

provides live event data, such as data about sporting events. *See, e.g.*, Ex. 1017 ¶ 28, Fig. 4.

Petitioner makes three arguments in support of its position that the relevant artisan would have made its proposed combination. Pet. 24–28 (citing Ex. 1001 ¶¶ 106–115). First, Petitioner argues that its proposed combination would have been made to improve latency issues in Ellis’s system. Pet. 24–26. Second, Petitioner argues that Ellis and Spivey relate to the same subject matter and the references solve the same or similar problems. Pet. 27. Third, Petitioner argues that its proposed combination would have been obvious because it “would have required only the simple substitution of known elements for another to obtain predictable results.” Pet. 27–28. Petitioner takes the position that these same arguments support that the relevant artisan would have had a reasonable expectation of success in combining the relevant teachings. Pet. 28.

Patent Owner proffers three arguments in support of its position that Petitioner has not shown that the relevant artisan would have combined the teachings of Ellis and Spivey. *See* PO Resp. 40–50. First, Patent Owner argues that Petitioner’s proposed combination is inoperable and departs from the express teachings of Ellis because Petitioner’s proposed combination removes Ellis’s supplemental content source 120 having database 122 and replaces it with “Spivey’s database-less system.” *Id.* at 41–45. Second, Patent Owner argues Petitioner’s reasons do not “withstand scrutiny” in part because of differences in the references’ teachings and because Petitioner does not show the relevant artisan would have had a reasonable expectation of success. *Id.* at 45–48. Third, Patent Owner argues Petitioner relies on

impermissible hindsight bias to “reconstruct the invention” from cherry-picked prior art teachings. *Id.* at 48–50.

For the reasons given below (see also the Decision on Institution (Dec. 26–34)), we find that Petitioner’s arguments are sufficiently supported by the evidence in the record before us and that Patent Owner’s arguments do not undermine Petitioner’s showing.

Ellis describes that its supplemental content source 120 provides real-time data feeds with sports-related information, such as sports scores. *See, e.g.*, Ex. 1016 ¶ 41. Similarly, Spivey describes that its system including live data server device 450 and message queue server device 410 provides live event data, such as sports scores. *See, e.g.*, Ex. 1017 ¶ 27, Fig. 4.

We find unavailing Patent Owner’s argument that Petitioner’s combination “fails to account for critical distinctions between Ellis’s and Spivey’s teachings.” PO Resp. 40–41. Here, the evidence of record shows substantial similarity between, and complementary nature of, the Ellis and Spivey disclosures of providing content delivery for real-time events quickly to multiple users. *See, e.g.*, Ex. 1016, code (57) (describing “[s]ystems and methods for enhanced sports-related media content access and display”), ¶ 39 (describing that in system 100 “[u]ser equipment device 102 receives content . . . from content source 120 and/or supplemental content source 120 over communications paths 150 and 152, respectively” and “[a]ny suitable number of users may have one or more user equipment devices, such as user equipment 102”), ¶ 40 (describing that “[c]ontent source 130 may be any suitable source of media content” such as the “Internet or network media/web server” and that “[m]edia content” includes “broadcast programming,” “news,” “newsgroups,” and “chat rooms”), ¶ 41 (describing

that “[s]upplemental content source 120 may be any suitable content source configured to provide real-time sports scores and game summary information . . . [and] sports commentary” as well as other “sports-related information” via “a plurality of real-time data feeds”); Ex. 1017, code (57) (describing “[a]n apparatus to broadcast live event data in real-time” that receives “a topic entry from a message queue server” and pushes “the topic entry to a subscribed client device substantially simultaneously with the message queue server receiving the topic entry from the live data source”), ¶ 27 (describing techniques for broadcasting “media content in real-time” and that the “media content may comprise, for example, data from a live event (e.g., news event, a gaming event, sporting event, etc.)” and that “live event data (e.g., sports scores and breaking news)” also is broadcasted), ¶ 34 (describing “system 100 for broadcasting live data in real-time” that includes “client devices 110-1 through 110-a”).

Further, the evidence of record shows that Ellis and Spivey both disclose that content is provided over the Internet. In particular, Ellis describes that “[c]ontent source 130 and supplemental content source 120 may be configured to transmit signals to user equipment 102 over any suitable communication paths 150 and 152” (Ex. 1016 ¶ 45), and that, in certain embodiments, content is delivered “on a particular network address (e.g., multicast address) on which an IP socket is currently joined.” *Id.* ¶¶ 45, 74. Also, Spivey describes “[a]n apparatus to broadcast live event data in real-time” that receives “a topic entry from a message queue server” and pushes “the topic entry to a subscribed client device substantially simultaneously with the message queue server receiving the topic entry from the live data source,” wherein the subscribed client device receives data over

a websocket connection. *See* Ex. 1017, code (57), ¶¶ 43, 61, 74, 92, 182 (claim 8).

Both Ellis and Spivey disclose providing content delivery for real-time sporting events quickly to multiple users over the Internet. *See, e.g.*, Ex. 1016, code (57), ¶¶ 39–41, 45, 74; Ex. 1017, code (57), ¶¶ 27, 34. Thus, Patent Owner’s characterizations that Petitioner fails to account for critical distinctions between Ellis and Spivey (PO Resp. 40–45) are not based on the teachings of the references *considered as a whole*, or from *the perspective of the relevant artisan*. *See Sundance Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361 n.3 (Fed. Cir. 2008); *In re Hedges*, 783 F.2d 1038, 1041 (Fed. Cir. 1986).

As Petitioner explained during Oral Argument, Ellis “relates to the ability for the clients and the server to communicate,” which can be any system that can “provide real-time sports,” but “doesn’t discuss whether it’s a push system or a pull system,” whereas Spivey, on the other hand, “expressly indicates that it is a push type of data system which reduces latency over prior art systems that utilize push technologies.” Tr. 15:13–19. We find unavailing Petitioner’s contention that, “[a]s explained by Dr. Wicker, . . . [the relevant artisan] would have been motivated to implement real-time data delivery using Spivey’s data pushing technique to reduce latency.” *Id.* at 16:2–8. “[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR*, 550 U.S. at 417.

We find unavailing Patent Owner’s contention that Petitioner fails to “articulate why [the relevant artisan] would have been motivated to make the

necessary modifications and proposed combination.” PO Resp. 40–41. Here, Petitioner points out that its proposed combination would have been made to improve latency issues in Ellis’s system. Pet. 23–26. In particular, Spivey discloses that its techniques “may reduce . . . delay [on the order of seconds (e.g., 30 to 45 seconds) or minutes] to an order of milliseconds (ms) (e.g., 100 ms) or less, providing a significant advantage over the conventional practices.” Ex. 1017 ¶ 28. Spivey also discloses pushing data to the “subscribed connected client devices” substantially simultaneously with the message queue server receiving the topic entry from a live data source, e.g., “with a time delay of 100 milliseconds or less,” which Spivey discloses is “at least two orders of magnitude shorter than conventional time periods of legacy devices.” *Id.* ¶ 96; *see also id.* at code (57) (disclosing pushing “the topic entry to a subscribed client device substantially simultaneously with the message queue server receiving the topic entry from a live data source”).

We find Patent Owner’s arguments that Petitioner fails to “explain the modifications necessary to combine such teachings” are inconsistent with the evidence of record. PO Resp. 40–48. For example, Patent Owner’s argument that the proposed combination would be inoperable because the combination “does not include the LDAS” (*id.* at 44–45) is not consistent with the evidence of record that Spivey does not require the LDAS to serve as intermediary between the MQSD and the user equipment. *See* Ex. 1017 ¶¶ 38, 46. As discussed above, Spivey states that the system “may” include an LDAS (Ex. 1017 ¶ 38), supporting Petitioner’s contention that, in Spivey, the LDAS is “optional” wherein “the MQSD may be ‘accessible to clients over the network directly.’” Pet. Reply 3. As discussed above in

Section III.D.3.a, we find persuasive Petitioner’s argument that Spivey’s MQSD may push data from topic queues to the subscribers of the topics corresponding to those topic queues, which indicates that “the MQSD can deliver data directly to clients without the necessity of an LDAS.” *Id.* (citing Ex. 1017 ¶ 46).

We find Patent Owner’s arguments that Petitioner’s proposed combination is inoperable and departs from the express teachings of Ellis because Petitioner’s proposed combination removes database 122 and replaces it with “Spivey’s database-less system” is not consistent with evidence that Spivey discloses sources of data for transmission to client devices. For instance, Spivey discloses “data feeds” that are “generated by computing devices associated with a live event” and “data gathered by human observers of a live event and entered into an interface that communicates the gathered data.” Ex. 1017 ¶ 37. Also, Spivey describes “broadcasting live data in real-time” (*id.* ¶ 34) and receiving “live data in the form of a topic entry,” which may include “a score, a play, an error, an injury, a player-at-bat” when “the live event is a sporting event” (*id.* ¶¶ 47–48). Additionally, Ellis describes database 122 as *optional* stating that “sports-related information *may be* stored in database 122.” Ex. 1016, Fig. 1, ¶ 42 (emphasis added).

We find unavailing Patent Owner’s arguments that Petitioner relies on impermissible hindsight bias “as a guidepost to fill in certain missing details of the Ellis supplemental content source delivery architecture.” PO Resp. 49; *see id.* at 48–50. Instead, we find Petitioner’s argument that its proposed combination would have been made to improve latency issues in Ellis’s system (Pet. 23–26) is supported by Spivey’s disclosures. Spivey

describes that “the data payload of the topic entry may be pushed to the subscribed connected client devices substantially simultaneously with the message queue server receiving the topic entry from a live data source, e.g., with a time delay of 100 milliseconds or less.” Ex. 1017 ¶ 96; *see* Pet. Reply 16 (Petitioner arguing, “A clearly articulated motivation to combine is the best defense against allegations of hindsight.”).

On balance, we determine that Petitioner sufficiently evidences that the relevant artisan would have had rational reasons to combine the teachings of Ellis and Spivey to achieve the features of independent claims 16 and 21 as a whole, and would have had a reasonable expectation of success in doing so.

b) “event socket”

Claim 16 recites, in part, “transmitting at least one second instruction to the first viewer client device to cause the first viewer client device to receive the first online gaming information via a first event information communication channel between a first *event socket* of at least one socket server and the first viewer client device.” Ex. 1009, 60:44–49 (emphasis added) (Limitation 16.2).

Petitioner argues that Figure 1 of Ellis, reproduced below, “illustrates that the [supplemental content source 120 (SCS)] transmits ‘sports-related information’ to user equipment 102 over communication path 152,” and submits that “Ellis teaches that the SCS may be any suitable content source configured to provide real-time sports information, but does not specify that the SCS is a socket server which transmits the sports-related information to the user equipment.” Pet. 32 (citing Ex. 1016, Fig. 1); *see* Ex. 1001 ¶ 187.

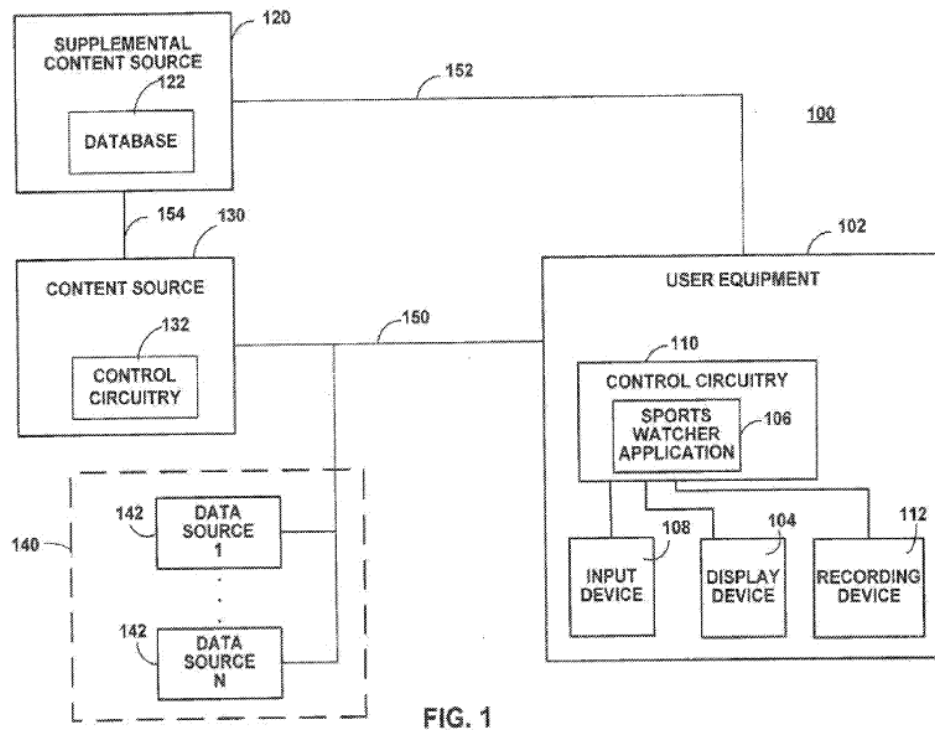
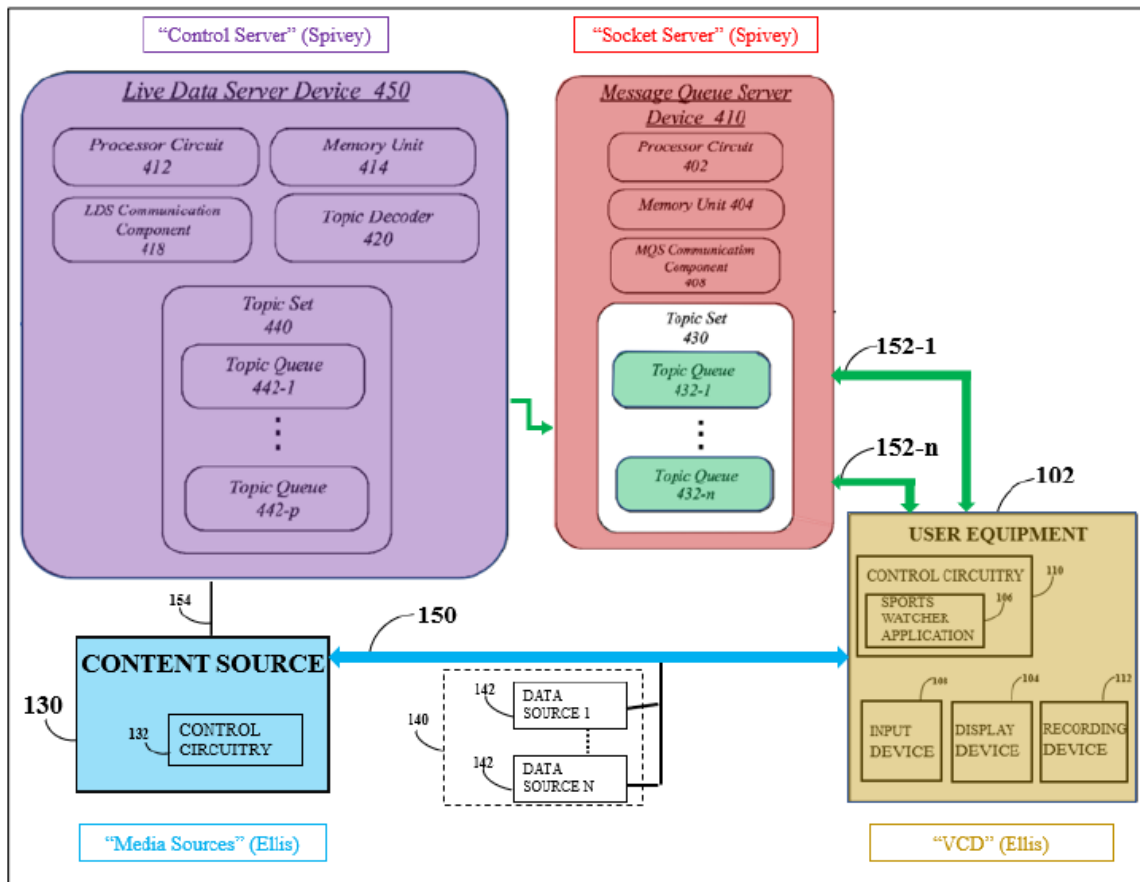


Figure 1 is a block diagram illustrating interactive media system 100. Ex. 1016 ¶¶ 15, 39.

Petitioner argues, in the proposed combination of Ellis and Spivey, a topic queue as taught in Spivey, available from Spivey's message queue server device, is a uniquely addressable communication endpoint on a server where first event information is provided to a client. Pet. 32–34. Petitioner asserts that in Spivey, the client devices may request and participate in a websocket connection, and the relevant artisan would have understood this to be a connection between a client and a socket server. Pet. 32 (citing Ex. 1017, code (57), ¶¶ 43, 61; Ex. 1001 ¶¶ 187–191). Petitioner cites the topic queues of Spivey's message server device, which are subscribed to by a client through topic label text strings, after which data is pushed to subscribed connected devices. Pet. 33–34 (citing Ex. 1017 ¶¶ 48, 49, 51–52, 66, 81–84, 96, Fig. 9). Thus, Petitioner argues, in the proposed combination,

the Spivey topic queues and the Ellis content source teach or at least fairly suggest a first event socket and the transmission of online gaming information to a client. Pet. 32–34 (citing Ex. 1001 ¶¶ 187–191).

In particular, Petitioner argues that the relevant artisan “would have understood that Spivey’s topic queues disclose first event sockets.” Pet. 34 (citing Ex. 1001 ¶ 191). Petitioner provides an annotated, combined diagram of Ellis’s Figure 1 and Spivey’s Figure 4, reproduced below, to demonstrate its contention. Pet. 26.



Petitioner’s illustration of its combination of teachings from Ellis’s Figure 1 and Spivey’s Figure 4. Pet. 26.

Petitioner’s above annotated, combined diagram of Ellis’s Figure 1 and Spivey’s Figure 4 shows Ellis’s content source 130 (blue) and user

equipment 102 (yellow) combined with Spivey's live data server device 450 (purple) and message queue server device 410 (red). Pet. 26. As shown in Petitioner's annotated, combined diagram, Ellis's user equipment 102 (yellow) is connected via communication paths 152-1 through 152-n (green) to Spivey's message queue server device 410 (red). *Id.* As also shown, Spivey's message queue server device 410 (red) includes topic queues 432-1 through 432-n (green) (*id.*), which Petitioner relies on for teaching the "event socket." *See, e.g.,* Pet. 33–34.

Petitioner contends that Spivey discloses that "client devices 'may request and participate in a websocket connection,' which 'typically comprises a two-way connection between two entities.'" Pet. 32 (quoting Ex. 1017 ¶¶ 43, 61). Petitioner also relies on Spivey's disclosure that message queue server device 410 comprises, for example, an "Internet server" and clients and servers communicate, for example, via "public networks such as the Internet." Ex. 1017 ¶¶ 35, 178; *see also id.* ¶ 179 (describing communicating via "a communications network," which may be "any one and the combination of wired and/or wireless networks including without limitation . . . a public network (e.g., the Internet)" (cited at Pet. 30)).

Although Spivey's Figure 1, for example, describes that live data access server 130 is connected between message queue server 120 and client devices 110-1 through 110-a (Ex. 1017, Fig 1), Petitioner contends that its proposed combination, in which message queue server device 410 is connected directly to Ellis's user equipment 102, is consistent with Spivey's disclosure because Spivey also discloses that the message queue server device may be accessible to clients over the network *directly*. Pet. 30–31 n.7

(citing Ex. 1017 ¶¶ 36, 84); *see also id.* (citing Ex. 1017 ¶¶ 38, 46; Ex. 1001 ¶¶ 184–185) (providing additional explanation and reasoning to make the proposed combination).

For the feature of “receiv[ing] the first online gaming information via a first event information communication channel,” Petitioner contends that this feature also is taught by Spivey’s disclosure that the data payloads placed on Spivey’s topic queues “relate to a specific game between two NFL teams” and include “for example, a score, a play, . . . , and so forth.” Pet. 33 (citing, *e.g.*, Ex. 1017 ¶¶ 48–49, 51–52, 66, Fig. 9) (alteration in original).

In response, Patent Owner argues that “Spivey’s ‘topic queues’ do not disclose or suggest an ‘event socket’ because those topic queues are not ‘uniquely addressable communication endpoints.’” PO Resp. 2. Patent Owner also argues that “Spivey does not disclose or suggest that its Message Queue Servers (‘MQS’)/topic queues are capable of handling communication to individual client devices.” *Id.*

According to Patent Owner, “Spivey’s topic queues are neither ‘uniquely addressable’ nor ‘communication endpoints.’” PO Resp. 2 (citing Ex. 2001 ¶ 232). Patent Owner contends that “Spivey’s topic queues are merely an internal data structure within the MQSD,” and “Petitioner does not identify any disclosure that would suggest to [the relevant artisan] that Spivey’s topic queues are ‘uniquely addressable communication endpoints.’” *Id.* at 34. Patent Owner refers to Dr. Rubin’s declaration in which he testified that the relevant artisan “would not consider Spivey’s message queues to be ‘uniquely addressable communication endpoints’ because they lack an address through which they can communicate at all,”

wherein “Spivey describes only its [live data access server (LDAS)] as being uniquely addressable.” *Id.* at 2.

Although Patent Owner acknowledges that Spivey discloses that an “address may resemble a uniform resource locator (URL),” wherein user interface 900 “allow[s] an operator 108 of a client device to view and select . . . topics available from a message queue server,” Patent Owner contends that “Spivey’s user interfaces . . . *all pertain to accessing the [live data access server (LDAS)]* via a client mobile application.” PO Resp. 3 (citing, e.g., Ex. 1017 ¶¶ 81–88; Ex. 20[41] ¶¶ 25–27) (first two alterations in original). According to Patent Owner, “Spivey’s MQS immediately pushes data to the LDAS, and individual client devices subscribe to the LDAS to receive such data.” *Id.* Patent Owner contends that, accordingly, the relevant artisan would not understand “Spivey’s MQS’s and associated topic queues to be uniquely addressable communication endpoints.” *Id.*

As to its contention that Spivey’s topic queues are not capable of handling communication to individual client devices, Patent Owner contends that Petitioner’s proposed combination of Ellis and Spivey is “fundamentally inoperable” and not fit for its intended purpose. PO Resp. 3–6 (emphasis omitted). In particular, Patent Owner contends that the annotated, combined diagram of Ellis and Spivey in the Petition (reproduced above) “lacks any component capable of data transmission between the Message Queue Server Device or ‘MQSD’ (from Spivey) and the user equipment (from Ellis).” *Id.* at 3–4 (citing Pet. 26). That is, according to Patent Owner, the skilled artisan “would not understand Spivey’s MQSD as transmitting information between an ‘event socket’ and a client device,” because “Spivey does not

describe the MQSD as capable of connecting with individual clients.” *Id.* at 27–28 (citing Ex. 2041 ¶ 11; Ex. 1017 ¶¶ 45, 53–54, 59–63).

According to Patent Owner, the only component of Spivey’s MQSD that is capable of transmitting data is the “MQS Communication Component 408,” which “functions to ‘push the data payload from the topic queue to *a live data access server* that has subscribed to the topic of the topic queue.” PO Resp. 5 (citing Ex. 1017 ¶ 49). Patent Owner repeats its contention that it is only through the LDAS of Spivey that clients can access data from the MQSD, and contends that “[a]bsent the LDAS, and its subscription component or interface component, Spivey’s architecture will not operate to deliver data to the user equipment.” *Id.* (citing Ex. 20[41] ¶ 12). Patent Owner further contends that “Petitioner’s illustration of ‘communication channels’ 152-1, 152-n . . . are entirely of Petitioner’s and its expert’s own making,” wherein “[n]either Ellis nor Spivey disclose such multiple communication channels,” and thus, “despite Petitioner’s representation of a bi-directional arrow shown adjacent the topic queues, the topic queues . . . are not capable of handling communication to multiple end client or user equipment devices.” *Id.* at 5–6.

We find Patent Owner’s arguments unavailing. As a preliminary matter, we find unavailing Patent Owner’s argument that “Spivey’s ‘topic queues’ do not disclose or suggest an ‘event socket’ because those topic queues are not ‘uniquely addressable communication endpoints’” (PO Resp. 2).

Although Patent Owner argued during Oral Argument that the inventors of the challenged patent invented a version of one-to-many socket architecture that differs from Spivey’s topic queue architecture (Tr. 39:19–

40:20), Patent Owner acknowledged that prior to the challenged patent, it was known to use two communication channels, one to send video, one to send information about that video. *Id.* at 44:11–18. In particular, Patent Owner acknowledged that the claimed invention is directed to sending a video feed of a sporting event on one channel and sending information about that sporting event on another channel, and although Patent Owner argues that its invention is “the synchronization and the latency improvements through that one-to-many socket architecture,” Patent Owner conceded that the claims “could be broader than that.” *Id.* at 44:24–46:16.

In its Response, Patent Owner’s contentions mostly rely on Dr. Rubin, who testified that the relevant artisan “would not consider such a database, message queue, or any other internal data structure by themselves to be a ‘uniquely addressable communication endpoint[]’ because, as disclosed in Spivey, the queues themselves lack an address through which they can communicate at all.” Ex. 2001 ¶ 232. Dr. Rubin also testified that “[t]he only potential ‘communication endpoint’ Spivey discloses as being ‘uniquely addressable’ is the live data access server.” *Id.* ¶ 233.

On the other hand, Petitioner contends that “Spivey’s topic queues are uniquely addressable via URLs that include topic labels as part of the publicly addressable URLs, and thus are communication endpoints for multiple client devices.” Pet. Reply 8; *see also* Pet. 29–35. Petitioner relies on Dr. Wicker, who testified as follows:

[I]t is my opinion that this information is provided via a connection between a topic queue and the first user equipment device. Users can access the MQSD using a URL. *See* Ex. 1017 ¶¶ 81–82. Then, the user can access the specific topic queue she wishes to receive information from by using a text string, *e.g.*, a topic label or Event ID, associated with a topic queue. *Id.* ¶ 179,

Fig. 9 (“Gamecenter.nfl.ravenssteelers”). Thus, it is my opinion that [the relevant artisan] would have understood that Ellis in view of Spivey discloses distributing event information from a socket to a user device over an internet connection. Further, I believe [the relevant artisan] would have understood that the internet connection is established using a URL and text string identifying a uniquely addressable communication endpoint on the MQSD, where first event information is transmitted to a VCD.

Ex. 1001 ¶ 567.

We find Petitioner’s contentions with Dr. Wicker’s supporting testimony persuasive. In particular, we find Petitioner’s reliance on Spivey for disclosing “event socket” is supported by Spivey’s disclosures that a topic queue’s address “may resemble a uniform resource locator (URL)” and that user interface 900 “allow[s] an operator 108 of a client device to view and select . . . topics available from a message queue server.” Ex. 1017 ¶¶ 82, 84, Fig. 9. In Spivey, the message flow begins “when message queue server . . . pushes data payloads to subscribers of the topics in [the] message.” See Ex. 1017 ¶ 134. As Petitioner explains, in Spivey, “the address for connecting to a topic queue may resemble a URL, and client devices can select from a list of available topics and subscribe to those queues, after which the MQSD pushes the relevant data payloads to the subscribed devices.” Pet. Reply 8 (citing Ex. 1017 ¶¶ 82–84, 134).

As Petitioner explains, and as supported by Dr. Wicker’s testimony, Spivey’s “topic label may be . . . ‘gamecenter.nfl.ravensteelers,’ and client devices use these topic label text strings to connect and subscribe to the MQSD’s topic queues.” Pet. Reply 8 (citing Ex. 1001 ¶¶ 100–104, 171, 178, 190, 198). We find availing that, in Spivey, since the “client devices ‘request a live data connection’ by selecting or entering the address or

connection information which ‘may resemble a uniform resource locator (URL),’” Spivey’s topic queues “are not only logically but also actually implemented as uniquely addressable communication endpoints.” *Id.* at 9 (citing Ex. 1064 ¶¶ 11–14).

We find that Dr. Rubin’s testimony that the only potential “communication endpoint” in Spivey that is “uniquely addressable” is the live data access server (Ex. 2001 ¶ 233) merely addresses particular embodiments in Spivey. That is, Dr. Rubin does not address sufficiently Spivey’s teachings *as a whole* as understood from the perspective of the relevant artisan, which would include other embodiments. *See Sundance*, 550 F.3d at 1361 n.3 (“What a prior art reference discloses or teaches is determined from the perspective of one of ordinary skill in the art.”); *In re Hedges*, 783 F.2d at 1041 (noting that when evaluating claims for obviousness, “the prior art as a whole must be considered”). Dr. Rubin does not address Spivey’s disclosure that the system “may include” the LDAS (Ex. 1017 ¶ 38), but, as Petitioner points out, merely acknowledges that “there are examples in Spivey using the language [‘may’].” Pet. Reply 4 (citing Ex. 1063, 62:8–13) (alteration in original).

As Petitioner points out, in his deposition, Dr. Rubin acknowledges that “Spivey’s topic queues can be dedicated to specific events, such as a Ravens-Steelers game,” wherein “topic labels like ‘ravenssteelers.stats’ and ‘ravenssteelers.plays’ can be used to organize information hierarchically.” Pet. Reply 9 (citing Ex. 1063, 77:1–78:7). Dr. Rubin further agrees that “data related to those topics are placed in their respective topic queues,” and that “a topic queue could be, for example, related to a specific Ravens-Steeler game.” *Id.* We find availing Petitioner’s explanation that, in Spivey,

client devices use the topic queue's topic label text strings to connect and subscribe. *Id.* at 8 (citing Ex. 1001 ¶¶ 100–104, 171, 178, 190, 198). Thus, we find availing Petitioner's contention and Dr. Wicker's supporting testimony that Spivey's topic queues are “uniquely addressable communication endpoints.” *Id.* at 9; *see also* Ex. 1064 ¶¶ 11–14.

We further find unavailing Patent Owner's argument that “Spivey does not describe the MQSD as capable of connecting with individual clients,” because the only component of Spivey's MQSD that is capable of transmitting data is the “MQS Communication Component 408” which “functions to ‘push the data payload from the topic queue to *a live data access server* that has subscribed to the topic of the topic queue.’” PO Resp. 4–5, 27–28. In particular, we are not persuaded by Patent Owner's contention that the “text string topic labels” of Spivey “represent one interface, in a series of interfaces that visually depicts individual clients *accessing the LDAS.*” *Id.* at 27 (citing Ex. 1017 ¶¶ 63, 81–90; Ex. 2041 ¶¶ 11–14, 25–27). Instead, we find that Spivey's disclosures support Petitioner's arguments that “Spivey does not require the live data access server (‘LDAS’) to serve as an intermediary between the MQSD and client devices.” Pet. Reply 3.

Spivey specifically states that the system “may” include an LDAS, indicating that LDAS is optionally included. *See* Ex. 1017 ¶ 38. As Petitioner points out, Spivey states that the “MQS communication component 308 may also receive requests to subscribe to topics in a topic set 330, and *may push data from topic queues 332-1, 332-n to the subscribers* [i.e., client devices] of the topics corresponding to those topic queues,” which indicates that “the MQSD can deliver data directly to clients

without the necessity of an LDAS.” Pet. Reply 3 (citing Ex. 1017 ¶ 46). Although Spivey discloses that “[i]n some embodiments,” the message queue server is not accessible to clients “directly” because it is, for example, “behind a firewall,” we find such disclosure supports Petitioner’s contention that Spivey teaches or at least fairly suggests that the firewall is optional. Ex. 1017 ¶ 36 (cited in Pet. 30 n.7). In other words, such disclosure supports Petitioner’s contention that, where the firewall is not implemented, the message queue server is directly accessible to the clients. *Id.* Thus, although Patent Owner points to Figure 9 of Spivey which shows “text string ‘topic labels’ that when selected ‘cause the live data app 210 to send the selected topic(s) to *live data access server 130*” (PO Resp. 35 (citing Ex. 1017 ¶ 87, Fig. 9)), such embodiment in Spivey is an embodiment in which a firewall may be implemented among many various embodiments.

Accordingly, we find that Spivey sufficiently supports Petitioner’s contention that “the MQSD can deliver data directly to clients without the necessity of an LDAS.” Pet. Reply 3. Spivey discloses that its message queue server “may comprise one or more electronic devices capable of receiving, processing, and sending information for the system,” wherein the message queue server processes “live data to provide live data quickly to the client devices.” Ex. 1017 ¶¶ 35–36. Spivey also discloses clients and servers communicating information with each other over “a packet-switched network (e.g., public networks such as the Internet).” *Id.* ¶ 178.

As Petitioner explains, Spivey’s Figure 22, for example, shows an embodiment demonstrating “flexibility of Spivey’s architecture,” wherein “a single server [is provided] to implement the functionality of the LDAS and MQSD . . . , facilitating direct client-MQSD communication.” Pet.

Reply 4–5 (citing Ex. 1017, Fig. 22; Ex. 1064 ¶ 6). In particular, in the embodiment shown in Figure 22, “the server device 2250 may be the same or similar to live data access server 130, 1430, message queue server 120, 1420, and/or aggregator host server 1450.” Ex. 1017 ¶ 158. As Petitioner points out, Dr. Rubin acknowledges that “the functionality of the message queue server can be implemented in the server device 2250,” wherein “the client device makes a direct communication to the server device 2250.” Pet. Reply 5 (citing Ex. 1063, 72:22–73:3 (“Q But doesn’t it illustrate that the client device makes a direct communication to the server device 2250? A Yes.”), 82:3–83:1 (“[T]he server device may implement [the] functionality [of the message queue server device], but that’s not being shown in Figure 22.”)).

As Petitioner further explains, Spivey’s user interface 900 presented by live data app 210 residing on client device 200 “allow[s] an operator 108 of a client device 110 to view and select topics of live data to subscribe to,” which may comprise, for example, “the topics available from a message queue server.” *See* Ex. 1017 ¶ 84, Figs. 2, 9.

Here, we find availing Dr. Wicker’s testimony that the relevant artisan would have understood that “the MQSD’s communication component would act as an interface and subscription component allowing for MQSD-Client connections.” Pet. Reply 6 (citing Ex. 20[42], 34:21–35:2, 52:5–12). This is because “the MQSD’s communication component ‘may [] receive requests to subscribe to topics’ where the data is pushed ‘from topic queues . . . to the subscribers of the topics.’” *Id.* (citing Ex. 1017 ¶¶ 46, 49) (alterations in original).

Furthermore, as Petitioner also points out, the language of the claims in Spivey “confirm[s]” its contention that “Spivey contemplated direct MQSD-Client connections.” Pet. Reply 7. In particular, claim 7 recites a “connection” between the “requested topic at a [MQSD]” and the “client device,” which, as Petitioner points out, does not include an LDAS. *Id.* (citing Ex. 1017, Claim 7). Further, claim 8 claims the MQSD-Client connection is a “websocket connection.” *Id.* (citing Ex. 1017, Claim 8).

Spivey also discloses that the message queue server device “may be implemented as a RABBITMQ[] server,” which is an “open source message broker software.” Ex. 1017 ¶ 58. As Petitioner points out, Patent Owner admits that “Spivey’s MQSD may be implemented as a RabbitMQ—an architecture which permits direct connections between clients and an MQSD,” which “effectively confirms that Spivey discloses such direct connections.” Pet. Reply 10 (citing PO Resp. 33). Spivey explains that “RABBITMQ[] facilitates topic queues that receive published messages and push the messages to clients that have subscribed to the topic queues.” Ex. 1017 ¶ 58. Although Patent Owner contends that Spivey’s topic queues “are not capable of handling communication to multiple end client or user equipment devices” (PO Resp. 6), according to Petitioner, with RabbitMQ, “multiple client devices can ‘receive data from one queue’” (Pet. Reply 10–11).

We find availing Dr. Wicker’s testimony that the relevant artisan “would have understood Spivey to disclose a direct connection between client devices and MQSD,” and that the relevant artisan “would have used this implementation because reducing the amount of server transfers would reduce latency, which is Spivey’s main purpose.” Ex. 1001 ¶ 562.

Thus, although we agree with Patent Owner and the testimony of Dr. Rubin to the extent that we find Spivey discloses live data access server 130 connected to client devices 110-1 through 110-a in certain embodiments (*see, e.g.*, Ex. 1017, Fig. 1), we find that Spivey *also* would have taught or at least fairly suggested to the relevant artisan a direct connection between the message queue server device and client devices in other embodiments.

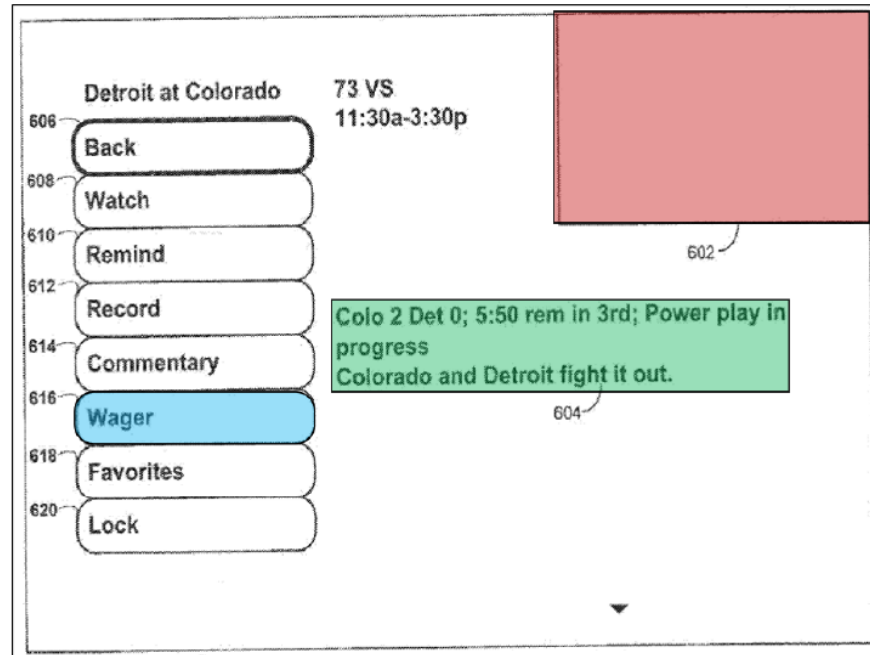
Accordingly, we determine that Petitioner sufficiently evidences that the combination of Ellis and Spivey discloses, teaches, or at least fairly suggests the claimed “event sockets” as recited, for example, in limitation 16.2.

c) “online gaming information”

We construe “online gaming information” to have its plain and ordinary meaning, where the relevant artisan would have understood this term to mean “*information used for, or relevant to, gaming conducted over the Internet,*” as discussed above in Section III.C.2.

Petitioner relies on Ellis’s supplemental content source (SCS), which provides a “plurality of real-time data feeds,” which can include “sports score and game status information” and “sports commentary,” to teach online gaming information, i.e., information relevant to gaming conducted over the Internet. Pet. 28 (quoting Ex. 1016 ¶ 41); *see* Pet. 29 (citing Ex. 1001 ¶¶ 182–183; Ex. 1016, code (57), ¶ 132, Figs. 4–5). Petitioner proffers that “Ellis discloses a VCD with a ‘game information display screen’ that simultaneously displays a sports programming video stream and online gaming information relating to the sport in the form of a wager.” Pet. 42–43 (citing Ex. 1016 ¶ 93, Fig. 6). Referring to an annotated version

of Ellis's Figure 6, reproduced below, Petitioner further explains how Ellis teaches online gaming information:



Ellis's Figure 6, annotated by Petitioner, shows an exemplary illustrative full-screen game information display screen. Ex. 1016 ¶ 21, Fig. 6; Pet. 43.

In [Figure 6 above], “the game itself may be displayed in **picture-in-guide (PIG) window 602**” and the online gaming information may be displayed in two different ways. *Id.* ¶93. First, the **flip banner 604** may “include additional live update data” such as “a scrollable description, live score and status updates, point spread, money line, and other wagering information, and other game-specific information.” *Id.* Second, a user can select the “**wagering option 616**” to display a “custom wagering interface” allowing the user to “wager on the game, to modify a previous wager on the game, or to view a wager previously made on the game, including any results.” *Id.* ¶98.

Pet. 43; *see* Pet. Reply 12–13 (Petitioner quoting testimony of Patent Owner's expert, Dr. Rubin: “Q. With reference to Figure 6 of Ellis, in

paragraph 98, if you will, does Ellis in his disclosure enable a user to gamble or wager? A. That's what it says.'').

Patent Owner argues that the cited “point spread, money line, and other wagering information” provided by Ellis’s supplemental content source from its database is not present in the combination proposed by Petitioner, because the supplemental content source is “replace[d] with Spivey’s live data server device and message queue server device,” and because “Ppetitioner does not allege that the functionality of Ellis’s supplemental content source would be maintained in the modified combination.” PO Resp. 41–42; *see* PO Sur-reply 10–14 (same). However, the Petition proposes “*implementing* Ellis’s [supplemental content source] using Spivey’s [live data server device] and adding Spivey’s [message queue server device]” resulting in a combined system that would “*upgrade* the supplemental content data delivery system.” Pet. 25–26 (emphases added). Thus, Patent Owner’s argument that the supplemental content server is merely replaced by these elements of Spivey is not commensurate with the Petitioner’s proposed combination in which Ellis’s supplemental content server is implemented by the Spivey elements. Additionally, as discussed above, Spivey’s “data feeds” and “live data” (Ex. 1017 ¶¶ 34, 37, 48) and the fact that Ellis’s database is optional (Ex. 1016 ¶ 42) teach or at least fairly suggest that such online gaming information would still be available in the asserted combination. *See Fleming v. Cirrus Design Corp.*, 28 F.4th 1214, 1223 (Fed. Cir. 2022) (“When considering obviousness of a claimed invention, the Supreme Court has emphasized that the ‘person of ordinary skill is also a person of ordinary creativity, not an automaton.’”).

Accordingly, we determine that Petitioner sufficiently evidences that the combination of Ellis and Spivey discloses, teaches, or at least fairly suggests the claimed “online gaming information” as variously recited in, for example, independent claims 16 and 21.

d) Undisputed Limitations

Petitioner contends the remaining limitations of independent claims 16 and 21 not addressed above in Section III.D.3.b (“event socket”) and Section III.D.3.c (“online gaming information”) also would have been taught or at least fairly suggested by the combination of Ellis and Spivey. Pet. 23–35. The Petition provides a detailed assessment of these remaining limitations, with references to disclosures in Ellis and Spivey and the declaration testimony of Petitioner’s expert, Dr. Wicker. *See id.* Patent Owner does not contend that these remaining limitations in claims 16 and 21 are absent in the combination of Ellis and Spivey, except as implicated by the disputed limitations discussed above, and therefore, has waived such arguments.³ For the reasons set forth in the Petition (Pet. 23–35), and based on the evidence cited therein, we find Petitioner sufficiently establishes that the combination of Ellis and Spivey would have taught or at least fairly suggested to the relevant artisan these remaining limitations as a whole as recited in claims 16 and 21.

³ *See In re NuVasive, Inc.*, 842 F.3d 1376, 1379–82 (Fed. Cir. 2016) (holding that patent owner waived arguments on an issue that were not raised in its response after institution); *see also Papst Licensing GmbH & Co. KG v. Samsung Elecs. Am., Inc.*, 924 F.3d 1243, 1250 (Fed. Cir. 2019) (holding patent owner forfeited argument for patentability not presented to the Board); *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1048 (Fed. Cir. 2019) (explaining that arguments not presented to the Board are waived).

e) Objective Indicia of Nonobviousness

We next consider Patent Owner’s evidence concerning objective indicia of nonobviousness. PO Resp. 63–70; *see Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1047–48 (Fed. Cir. 2016) (en banc). Objective evidence of nonobviousness “may often be the most probative and cogent evidence in the record” and “may often establish that an invention appearing to have been obvious in light of the prior art was not.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012).

For objective indicia of nonobviousness to be accorded substantial weight, “its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). “[T]here is no nexus unless the evidence presented is ‘reasonably commensurate with the scope of the claims.’” *Id.* (quoting *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)). The patentee “bears the burden of showing that a nexus exists.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999).

A rebuttable presumption of nexus arises “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)). Whether a rebuttable presumption of nexus arises “turns on the nature of the claims and the specific facts.” *Teva Pharm. Int’l GmbH v. Eli Lilly & Co.*, 8 F.4th 1349, 1362 (Fed. Cir. 2021). Absent a presumption of nexus, the patentee may prove nexus by showing that the objective evidence

resulted directly from “the unique characteristics of the claimed invention.” *Fox Factory*, 944 F.3d at 1373–74; *see In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996). “Where the offered secondary consideration actually results from something other than what is both claimed and *novel* in the claim, there is no nexus to the merits of the claimed invention,” meaning that “there must be a nexus to some aspect of the claim not already in the prior art.” *In re Kao*, 639 F.3d 1057, 1068–69 (Fed. Cir. 2011) (emphasis in original).

(1) *Long-felt But Unresolved Need*

“Evidence of a long-felt but unresolved need can weigh in favor of the non-obviousness of an invention because it is reasonable to infer that the need would not have persisted had the solution been obvious.” *Apple v. Samsung*, 839 F.3d at 1056. Patent Owner asserts that there was a long-felt need for a system that “allows broadcasters to deliver synchronized, low-latency video and audio content with scalable, flexible access for different types of viewers and service qualities.” PO Resp. 65. Patent Owner argues that the claimed invention of the ’218 patent satisfied this long felt need by “enabl[ing] enhanced live video streaming using a novel one-to-many socket architecture, allowing multiple viewer devices to receive synchronized, contextually matched event information from a single socket server.” *Id.* According to Patent Owner, “[t]he inventors were the first to recognize that incorporating dedicated socket servers, web servers, and control servers within a livestreaming server architecture could improve network functionality, enabling scalable, low-latency viewing of live events and commentary by many viewers.” *Id.*

As support, Patent Owner relies on the declaration of Dr. Rubin. PO Resp. 64–65 (citing Ex. 2001 ¶¶ 72–79). Dr. Rubin explains that “[u]nlike

the systems and methods described in the prior art, . . . [t]he '218 patent describes a socket architecture that allows multiple viewer client devices to receive information from a dedicated event information channel over an 'event socket' for that event.” Ex. 2001 ¶¶ 77–79.

Considering the totality of the evidence, we find Patent Owner has not demonstrated that a long-felt but unresolved need existed for the claimed invention. *See Apple v. Samsung*, 839 F.3d at 1056. As Petitioner points out, although Patent Owner argues that there is a long-felt need for a system that “allows broadcasters to deliver synchronized, low-latency video and audio content” (PO Resp. 65), Patent Owner does not contest Petitioner’s showing that Ellis also discloses “a video streaming system that provided event information over a separate channel, which is not hard embedded in the video stream.” Pet. Reply 25.

Further, as Petitioner points out in the context of “representative claim 12,” the claim “simply requires ‘receiv[ing] the first copy via a first video communication channel between at least one media source and the first client device,’” and “[i]n no way does that claim language relate to any synchronized, low-latency, scalable, flexible, or new and improved video streaming technique.” Pet. Reply 22. In fact, during Oral Argument, although Patent Owner argues that its invention is “the synchronization and the latency improvements through that one-to-many socket architecture,” Patent Owner conceded that the claims “could be broader than that.” Tr. 44:24–46:16. We find availing Petitioner’s argument that the “claim language” does not “relate to any synchronized, low-latency, scalable, flexible, or new and improved video streaming technique.” Pet. Reply 22.

Petitioner argues that we should give “no weight” to Patent Owner’s alleged “evidence” of any long-felt but unresolved needs. Pet. Reply 22. In particular, Patent Owner merely provides conclusory statements that, prior to the claimed invention, “conventional video streaming systems” included “hard-embedded event information,” and that “[t]he claimed invention satisfied the long-felt need for an innovative system.” PO Resp. 64–65.

Thus, considering the totality of the evidence, we agree with Petitioner that Patent Owner has failed to establish that there was a long-felt but unresolved need for the claimed invention.

(2) Industry Praise

Evidence that the industry praised a claimed invention or a product that embodies the patent claims weighs against an assertion that the same claim would have been obvious. *WBIP, LLC v Kohler Co.*, 829 F.3d 1317, 1334 (Fed. Cir. 2016). Patent Owner contends that it has “earned numerous accolades such as being a finalist in Sports Tech Tokyo, the Yahoo! Sports Tech Awards, and Sports Business Journal’s Best in Sports Technology.” PO Resp. 66 (citing Ex. 2008). Further, according to Patent Owner, its technology and platform “have been featured in dozens of publications and TV broadcasts including ESPN, Yahoo!, Bleacher Report, Forbes, CNBC, and many more.” *Id.* (citing Ex. 2008; Ex. 2009). Patent Owner contends that “[f]ormer NBA commissioner David Stern opined in an article that states ‘SportsCastr.Live will allow a budding sportscaster to overlay streams carrying enhancements to update in real time (e.g., live betting lines) and lend a professional look to the presentation.’” *Id.* at 66 (citing Ex. 2006). Patent Owner contends that “[t]he benefits and advantages highlighted by the industry result directly from the claims.” *Id.* at 66–67.

We find Patent Owner has not provided sufficient evidence showing the industry praised a claimed invention or a product that embodies the patent claims. *WBIP*, 829 F.3d at 1334. In particular, other than Patent Owner’s mere conclusory statement that the benefits and advantages highlighted by the industry “result directly from the claims” (PO Resp. 66–67), we see no evidence in the record that the subject matter specifically recited by claims 16 and 21 of the ’218 patent, for example, was the object of the praise. That is, Patent Owner does not explain how the relied-upon praise particularly relates to the claims of the ’218 patent. *Id.*

For Patent Owner’s evidence concerning objective indicia of non-obviousness to be considered, Patent Owner must establish a nexus between the evidence concerning objective indicia of non-obviousness and the merits of the claimed invention. *See ClassCo v. Apple*, 838 F.3d at 1220.

We find availing Petitioner’s argument that the evidence of industry praise submitted by Patent Owner does not “explain[] how those awards relate to any embodying product, much less any relation between the award and the ’218’s claims.” Pet. Reply 23. Although Patent Owner also relies on the opinion of former NBA commissioner David Stern, Petitioner contends that “the late David Stern was an investor,” and thus, “in no way provides evidence of *industry* praise.” *Id.* We are persuaded by Petitioner’s contention that the opinion from an investor is insufficient evidence of “*industry* praise.” *Id.* Thus, we find this evidence from Mr. Stern should be entitled to little weight in our analysis.

Since Patent Owner has not provided evidence that a product subject to industry praise embodies the claimed features and is coextensive with the claims, it is not entitled to presumption of nexus. Absent a presumption of

nexus, the Board considers whether the patentee has demonstrated a legally and factually sufficient connection between the evidence and the claimed invention. *See Fox Factory*, 944 F.3d at 1373–74; *In re Huang*, 100 F.3d at 14. Here, Patent Owner also does not demonstrate any legally and factually sufficient connection of Patent Owner’s provided evidence to the claims of the ’218 patent. *See generally* PO Resp. 65–67.

Thus, considering the totality of the evidence, we agree with Petitioner that Patent Owner has failed to establish that there was industry praise of the claimed invention.

(3) *Copying*

Patent Owner contends that “Petitioner gained knowledge of Patent Owner’s products under the guise of exploring partnerships, but in reality, intended to copy Patent Owner’s patented products.” PO Resp. 67–68. In particular, Patent Owner references emails from “Ben Turner” from “geniussports.com” as “evidence” that Petitioner has been aware of and praised Patent Owner’s patented products, and contends that this copying shows that the challenged claims are not obvious. *Id.* at 67–68 (citing Exs. 2015, 2016).

Petitioner denies Patent Owner’s “unsubstantiated accusations that Petitioner copied its products or was aware of its patents.” Pet. Reply 23. Petitioner contends that the two emails that Patent Owner provides “show Petitioner, at most, saw [Patent Owner’s] basic features and spoke politely over email correspondence.” *Id.* at 23–24.

Based on the records before us, we find that Patent Owner’s arguments that Petitioner was developing its own products by copying Patent Owner’s patented products (PO Resp. 67–68) are conclusory without

sufficient supporting evidence. Although Patent Owner provides as evidence the two emails from Ben Turner (Exs. 2015, 2016), Patent Owner does not reference any specific product allegedly being copied that embodies and is coextensive with the claimed features, nor does Patent Owner show that the evidence is a direct result of unique characteristics of the claimed invention. *See* PO Resp. 67–68. We find that these emails alone do not support sufficiently that Petitioner had access to a patented product, and we are left to speculate as to what Patent Owner asserts has been copied and how. We decline to “play archeologist with the record” in order to understand Patent Owner’s arguments. *Gen. Access Sols., Ltd. v. Sprint Spectrum L.P.*, 811 F. App’x 654, 657–58 (Fed. Cir. 2020).

Thus, considering the totality of the evidence, we agree with Petitioner that Patent Owner has failed to sufficiently establish that there was copying of the claimed invention.

(4) Commercial Success

Patent Owner contends that it “implemented the claimed invention of the ’218 patent to meet the growing demand for improved user experience when interacting with livestream broadcasters.” PO Resp. 68. According to Patent Owner, “the extensive promotion by Patent Owner of the improved user experience and revenue generation underscores how the patented technology drives demand and commercial success of the patented products.” *Id.* at 69.

Petitioner argues that Patent Owner “does not discuss or cite any sales information of any patented product in any market.” Pet. Reply 24 (citing PO Resp. 68–70). Further, Petitioner contends that Patent Owner “does not explain how there is a nexus between nonexistent sales and the patented

invention’s claims.” *Id.* According to Petitioner, Patent Owner advertised its “‘custom-tailor[ing] for the unique needs of sports publishers’ and ‘new ways to increase engagement’” as selling points, but “not any patented, allegedly ‘inventive server and memory storage architecture.’” *Id.* (quoting Ex. 2011).

We find Patent Owner has not provided sufficient evidence showing commercial success of a claimed invention or a product that embodies the patent claims. *WBIP*, 829 F.3d at 1334. In particular, other than Patent Owner’s mere conclusory statement that the extensive promotion by Patent Owner of the improved user experience and revenue generation underscores how the patented technology drives demand and commercial success (PO Resp. 68–69), we see no evidence in the record that the subject matter specifically recited by claims 16 and 21 of the ’218 patent, for example, was the object of commercial success. That is, Patent Owner does not explain how any commercial success particularly relates to the claims of the ’218 patent. *Id.* As Petitioner points out, Patent Owner does not discuss or even cite any sales information, wherein its promotions are not even directed to the claimed invention. Pet. Reply 24.

Patent Owner must establish a nexus between the evidence concerning objective indicia of non-obviousness and the merits of the claimed invention. *See ClassCo v. Apple*, 838 F.3d at 1220.

Since Patent Owner has not provided evidence that a product subject to commercial success embodies the claimed features and is coextensive with the claims, it is not entitled to presumption of nexus. Further, Patent Owner also does not demonstrate any legally and factually sufficient

connection of Patent Owner's provided evidence to the claims of the '218 patent. *See generally* PO Resp. 68–70.

Thus, considering the totality of the evidence, we agree with Petitioner that Patent Owner has failed to sufficiently establish that there was commercial success of the claimed invention.

(5) Simultaneous Invention

Petitioner contends that the “sheer number” of independently made simultaneous inventions within a short space of time are persuasive indicia of obviousness. Pet. 85 (citing Ex. 1001 ¶ 768; *Geo. M. Martin Co. v. Alliance Machine Sys. Int'l LLC*, 618 F.3d 1294, 1304–05 (Fed. Cir. 2010)). Petitioner has not shown that the alleged simultaneous inventions are commensurate in scope with the '218 patent's claims. In any case, this evidence weighs, if at all, toward Petitioner's position.

(6) Conclusion as to Objective Indicia of Non-Obviousness

For the foregoing reasons, although we have considered Patent Owner's evidence of objective indicia of nonobviousness, we accord it little weight, and find that it does not outweigh Petitioner's strong countervailing evidence supporting a conclusion of obviousness.

f) Conclusion for Independent Claims 16 and 21

In view of the foregoing and notwithstanding Patent Owner's proffered objective indicia of nonobviousness discussed above, we are persuaded that Petitioner establishes, by a preponderance of the evidence, that each of independent claims 12 and 21 is unpatentable as obvious over the combination of Ellis and Spivey. As discussed above in Section III.D.3.e, Patent Owner's objective indicia of nonobviousness are entitled to

little weight, but even if we were to give them more weight, they still would not overcome Petitioner's strong showing of obviousness.

4. *Dependent Claims 17–20 and 22–30*

Claims 17–20 depend, directly or indirectly, from claim 16, and claims 22–30 depend, directly or indirectly, from claim 21. The Petition provides a detailed assessment of these claims, with references to the Petition's analysis of claims 16 and 21, disclosures in Ellis and Spivey, and the declaration testimony of Dr. Wicker. Pet. 35–42, 45–55. Patent Owner does not contend that the limitations in claims 17–20 and 22–30 are absent in the combination of Ellis and Spivey, and therefore, has waived such arguments. *See In re NuVasive*, 842 F.3d at 1379–82; *see generally* PO Resp.; PO Sur-reply. As discussed above, we are persuaded that the cited evidence sufficiently supports Petitioner's contentions that independent claims 16 and 21 would have been unpatentable as obvious over the combination of Ellis and Spivey, and also are persuaded that the cited evidence sufficiently shows claims 17–20 and 22–30 likewise obvious. For the same reasons provided above for independent claims 16 and 21, and the reasons set forth in the Petition (Pet. 35–42, 45–55), we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 17–20 and 22–30 would have been unpatentable as obvious over the combination of Ellis and Spivey.

5. *Conclusion as to Ground 1*

Weighing the evidence of the level of ordinary skill in the art, the disclosure of the prior art, differences between the prior art references and the claims at issue, the reasoning to combine the references with a reasonable expectation of success, and the objective indicia of

nonobviousness or obviousness, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 16–30 would have been unpatentable as obvious over the combination of Ellis and Spivey.

E. Anticipation of Claims 21, 22, 27, and 28 by Herzog (Ground 2A)

Petitioner contends claims 21, 22, 27, and 28 are unpatentable under 35 U.S.C. § 102 as anticipated by Herzog. Pet. 56–64; Pet. Reply 17–18. Patent Owner opposes Petitioner’s contentions. PO Resp. 50–53; PO Sur-reply 14–15. For the reasons expressed below, and based on the complete record before us, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 21, 22, 27, and 28 are unpatentable as anticipated by Herzog. We turn first to an overview of Herzog.

1. Overview of Herzog (Ex. 1015)

Herzog is titled “Time Synchronization of Video and Data Inside a Mobile Device,” and discloses a mobile device including a processor configured to receive and format live video data, audio data, and meta-data for display on the mobile device, and synchronize selected meta-data with the video and audio for simultaneous display. Ex. 1015, codes (54), (57). Figure 4 of Herzog, reproduced below, shows system 40 that provides communications for mobile devices. *Id.* ¶¶ 9, 43.

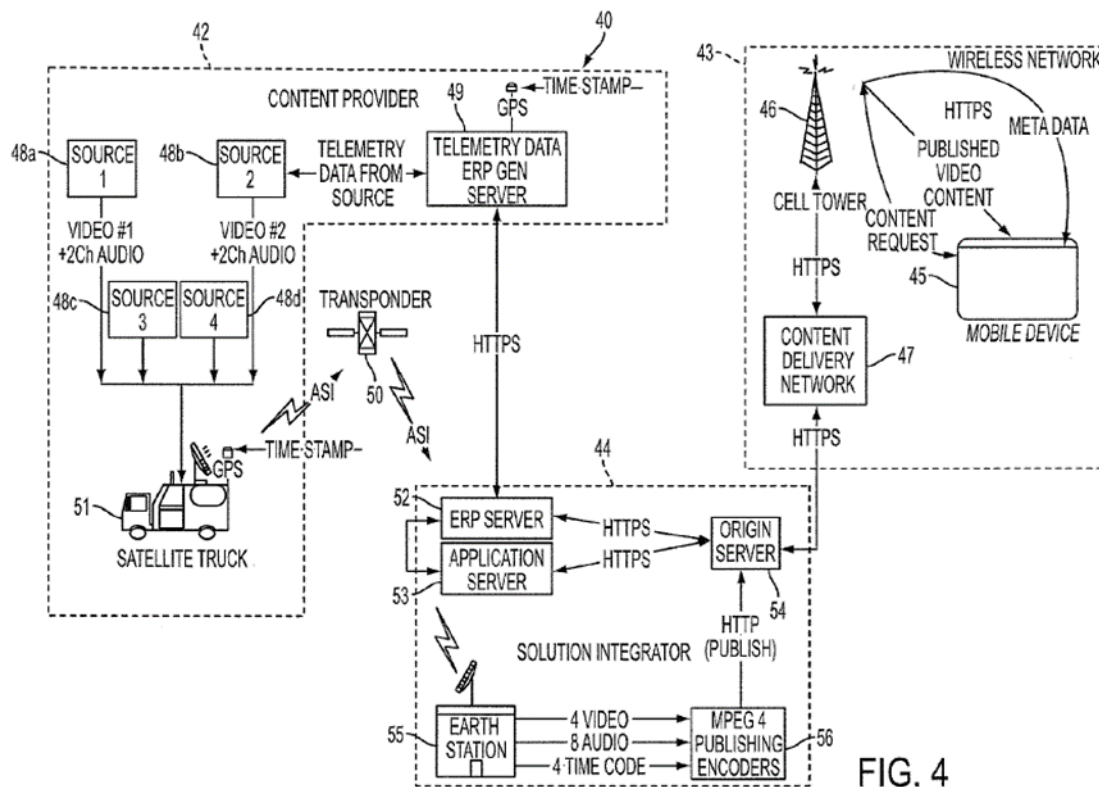


FIG. 4

Figure 4 shows system 40 that provides communications to exemplary mobile device 45.
Id. ¶¶ 9, 43.

As shown above in Figure 4, system 40 provides communications to mobile device 45 in wireless network 43 via content delivery network 47. Ex. 1015 ¶ 43. System 40 includes content provider 42, which provides video and audio data of an event occurring in real time, along with meta-data. *Id.* ¶ 45. Content provider 42 provides video/audio streams from imaging sources 48a–48d. *Id.* ¶ 46.

Content provider 42 also includes an Enhanced Result Protocol (ERP) generator server 49 configured to receive meta-data from imaging sources 48a–48d. Ex. 1015 ¶ 47. ERP generator server 49 extracts meta-data parameters that may be of interest to a user, formats the extracted meta-data into a Hypertext Transfer Protocol Secure (HTTPS) protocol, and transmits

the formatted meta-data to solution integrator 44. *Id.* Solution integrator 44 transmits the video/audio stream and meta-data to content delivery network 47 for delivery to mobile device 45. *Id.* ¶¶ 48–51.

The video and audio data and the meta-data may both be time stamped with consistent (e.g., GPS) timing protocols, wherein each respective data may be time-tagged to the same timing signature so that the video and audio data are time synchronized to the meta-data, displaying the data in a mobile device in correct time sync. Ex. 1015 ¶ 18. In particular, as shown in Figure 4, an external clock or GPS timing system is added to ERP generator server 49 in content provider 42, wherein ERP generator 49 is responsible for inserting the time data into the meta-data field. *Id.* ¶ 52. In addition, as shown in Figure 4, an external clock or GPS timing system is added to the video transmission point or satellite uplink truck 51, to time stamp each video/audio channel at the video transmission point. *Id.* ¶ 53. Accordingly, two time stamps exist in the system, one associated with the video and one with the metadata. *Id.* ¶ 56.

Herzog recognizes that latency issues may exist due to ingesting and processing the video/audio and the meta-data. Ex. 1015 ¶ 56. In order to address latency between the video/audio stream and metadata stream, the time stamp for the video/audio stream “is deemed to be the master time for synchronization” with time stamp for the now timestamped metadata “slaved to the master time” generated by the audio/video time code. *Id.* ¶ 58. When the two separate streams arrive at the mobile device, “[b]oth types of data are assembled in the mobile device 45 via the client application software that resides within the mobile device, for appropriate presentation on the device’s display.” *Id.*

Thus, Herzog is directed to a system that synchronizes two different types of data, such as video/audio data and meta-data, where each type of data includes accurate time stamps, and where the latency associated with one type of data is different from the latency associated with the other type of data. Ex. 1015 ¶ 64. Herzog combines the two types of data so that they display appropriately on a mobile device in correct time synchronization. *Id.*

2. *Independent Claim 21*

Petitioner contends that Herzog discloses each limitation of independent claim 21, in its video player display including videos and meta-data, with a user requesting this data, and with the video and metadata information provided over separate communication paths. Pet. 56–61 (citing Ex. 1015 ¶¶ 3, 12, 27, 45, 47–51, 80–81, 83, Figs. 1, 4, 6, 7; Ex. 1001 ¶¶ 250–253). Patent Owner argues that Herzog does not disclose “online gaming information,” but otherwise does not dispute Petitioner’s contentions here. PO Resp. 50–53; PO Sur-reply 14–15.

As Petitioner argues, Herzog’s device renders on a video player (“display of the first client device”) live event video (“first video”) and metadata related to the video (“first digital content corresponding to the first video”). Ex. 1015 ¶ 12, Fig. 7 (cited at Pet. 56). Herzog’s client device receives this content after making a user video request. *Id.* at Fig. 6; *see id.* ¶ 70 (describing cited Fig. 6). Petitioner additionally evidences that the relevant artisan would have understood that transmitting instructions would be inherent in the connection made by a client device prior to a live stream. Pet. 58 (citing Ex. 1001 ¶ 253). Herzog discloses that video content is received via an HTTP Live Streaming (HLS) channel, while metadata is received via HTTPS formatted signals, in two separate paths; additionally,

the source for each of these types of data is different. Ex. 1015, Fig. 5; *see id.* ¶¶ 61–63 (describing cited Fig. 5).

Petitioner contends that Herzog discloses providing event information germane to a sporting event: “Herzog transmits ‘meta-data’ such as ‘the status of each car and driver in the race’ and may include ‘lap number, car speed and acceleration’ but there may be as many as ‘50 different parameters that are available.’” Pet. 58 (citing Ex. 1015 ¶ 45; Ex. 1001 ¶ 252). In particular, Petitioner argues:

Herzog’s “lap number, car speed and acceleration” metadata is relevant to wagering or gambling on a sporting event. Ex.1015 ¶45. Herzog describes “lap number, car speed and acceleration” as “telemetry data (meta-data) includ[ing] several parameters changing during the event,” (*id.*) specifically in the context of a live car race (*i. e.*, a sporting event), where “the video and audio data may be multiple video/audio streams of race cars and drivers, as they are imaged at different locations on the race track; and the telemetry data (meta-data) may include varying parameters regarding the status of each car and driver in the race. *Id.* Such parameters may include, for example, lap number, car speed and acceleration, tire pressure, etc.” *Id.* This meta-data is collected in real time from the sporting event and transmitted to user devices, making it relevant to wagering or gambling on the live sporting event. *Id.* ¶3.

Pet. Reply 17–18. Petitioner proffers that the relevant artisan “would have understood such parameters to include online gaming information,” *i.e.*, to constitute “information used for, or relevant to, gaming conducted over the Internet.” Pet. 58 (citing Ex. 1001 ¶ 252); *see supra* § III.C.2.

Patent Owner responds that Herzog’s metadata does not disclose “online gaming information.” PO Resp. 50–53; PO Sur-reply 14–15. But Patent Owner ignores the broad meaning of “online gaming information,” and fails to explain why Herzog’s metadata would not have been at least

“relevant to” gaming *involving car racing*. Indeed, Herzog explains that its parameters (metadata) “include, for example, lap number, car speed and acceleration, tire pressure, etc.,” and further that, “[i]n a car race, there may be as many as 50 different parameters that are available for monitoring of each race car, *in order to assess how well the driver is performing during any interval of the race.*” Ex. 1015 ¶ 45 (emphasis added). We find unavailing Patent Owner’s argument that such parameters are not “online gaming information.” Rather, we find persuasive Petitioner’s argument that telemetry data, explicitly disclosed as informing “how well the driver is performing during any interval of the race” (*id.*), would constitute information *relevant to gaming involving car racing* conducted over the Internet, i.e., online gaming information. Thus, we determine that Petitioner sufficiently evidences that Herzog discloses “online gaming information.”

Based on the foregoing and the complete record before us, we are persuaded that Petitioner establishes, by a preponderance of the evidence, that independent claim 21 is unpatentable as anticipated by Herzog.

3. *Dependent Claims 22, 27, and 28*

Claims 22, 27, and 28 depend, directly or indirectly, from claim 21. The Petition provides a detailed assessment of these claims, with references to the Petition’s analysis of claim 21, disclosures in Herzog, and the declaration testimony of Dr. Wicker. Pet. 61–64. Patent Owner does not contend that the limitations in claims 22, 27, and 28 are absent in Herzog (PO Resp. 53), and therefore, has waived such arguments. *See In re NuVasive*, 842 F.3d at 1379–82; *see generally* PO Resp.; PO Sur-reply. As discussed above, we are persuaded that the cited evidence sufficiently supports Petitioner’s contentions that independent claim 21 is unpatentable

as anticipated by Herzog, and also are persuaded that the cited evidence sufficiently shows claims 22, 27, and 28 likewise anticipated. For the same reasons provided above for independent claim 21, and the reasons set forth in the Petition (Pet. 61–64), we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 22, 27, and 28 are unpatentable as anticipated by Herzog.

F. Obviousness of Claims 25, 26, and 30 over the Combination of Herzog and Ellis (Ground 2B)

Petitioner contends claims 25, 26, and 30, which depend directly or indirectly from independent claim 21, would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Herzog and Ellis. Pet. 64–73; Pet. Reply 18. Petitioner proffers that “Herzog discloses claims 21 and 27 substantially as claimed” (*see supra* § III.E), and, “[t]o the extent Herzog does not disclose interactive content and/or a real-time information stream” as recited in claims 25, 26, and 30, the skilled artisan would have had certain rational reasons to integrate such features into Herzog, in view of Ellis. Pet. 64–69 (citing, *inter alia*, Ex. 1001 ¶¶ 132–141).

The Petition provides a detailed assessment of claims 25, 26, and 30, with references to the Petition’s analysis of claims 21 and 27, disclosures in Herzog and Ellis, and the declaration testimony of Dr. Wicker. Pet. 64–73. Patent Owner does not contend that the limitations in claims 25, 26, and 30 are absent in the combination of Herzog and Ellis (PO Resp. 53), and therefore, has waived such arguments. *See In re NuVasive*, 842 F.3d at 1379–82; *see generally* PO Resp.; PO Sur-reply. As discussed above in Section III.E, we are persuaded that the cited evidence sufficiently supports

Petitioner's contentions that independent claim 21 and dependent claim 27 would have been unpatentable as anticipated by Herzog, and also are persuaded that the cited evidence sufficiently shows claims 25, 26, and 30 would have been unpatentable as obvious over the combined teachings of Herzog and Ellis. For the same reasons provided above for claims 21 and 27, and the reasons set forth in the Petition (Pet. 64–73), we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 25, 26, and 30 would have been unpatentable as obvious over the combination of Herzog and Ellis.

G. Obviousness of Claims 16–20, 23, 24, and 29 over the Combination of Herzog and Spivey (Ground 2C)

Petitioner contends claims 16–20, 23, 24, and 29 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Herzog and Spivey. Pet. 73–85; Pet. Reply 2–12, 18–21. Patent Owner opposes Petitioner's contentions. PO Resp. 53–63; PO Sur-reply 1–10, 15–17. For the reasons expressed below, and based on the complete record before us, we determine that Petitioner has *not* demonstrated by a preponderance of the evidence that claims 16–20, 23, 24, and 29 would have been unpatentable as obvious over the combination of Herzog and Spivey.

1. No Rational Reason Proffered by Petitioner to Combine Herzog and Spivey

The parties dispute, *inter alia*, whether the relevant artisan would have had a *rational* reason to combine the teachings of Herzog and Spivey as proffered by Petitioner to achieve the subject claims. See Pet. 73–76; PO Resp. 53–63; Pet. Reply 18–21; PO Sur-reply 1–10, 15–17.

a) Institution Decision

In the Institution Decision, the panel preliminarily found that, on the record and their understanding of the art at that time, “Petitioner provide[d] sufficient rationale to combine the teachings of Herzog and Spivey for purposes of institution.” Dec. 55; *see id.* at 51–55. However, on further review of the Petition and further consideration of the parties’ briefing on this issue and the relevant case law, and based on the complete record before us, we now conclude otherwise. *Cf. Fanduel, Inc. v. Interactive Games LLC*, 966 F.3d 1334, 1340 (Fed. Cir. 2020) (“There is nothing inherently inconsistent about the Board instituting IPR on obviousness grounds and then ultimately finding that the petitioner did not provide preponderant evidence that the challenged claim was obvious.”); *see In re Magnum Oil Tools*, 829 F.3d at 1376 (“[T]he decision to institute and the final written decision are ‘two very different analyses,’ and each applies a ‘qualitatively different standard.’”). In particular, we determine that Petitioner’s proffered reasons for combining Herzog and Spivey to achieve the subject limitations lack rational underpinning, as discussed below.

b) Final Decision

Petitioner contends that “Herzog discloses a system and method for viewing multiple videos related to the same sporting event in addition to information about the event (meta-data).” Pet. 56. Although Petitioner acknowledges that “Herzog does not specifically disclose some backend server architecture supporting the data distribution—the claimed socket server,” Petitioner contends that the relevant artisan “would have known that the websocket client-server communication protocol employed by Spivey was an alternative to the HTTP polling used by Herzog.” Pet. 73 (citing

Ex. 1001 ¶¶ 125–126). According to Petitioner, the relevant artisan, “looking to improve Herzog’s latency issues, would have looked to implement a system such as Spivey.” Pet. 74 (citing Ex. 1001 ¶ 127).

Petitioner characterizes its proposed combination as a “simple substitution of known elements for another to obtain predictable results.” Pet. 75 (citing Ex. 1001 ¶ 131); *see* Ex. 1001 ¶ 154 (“[A]dding an additional real-time information stream to a system such as Herzog (among other content types), which already provides multiple live streams to clients, applies a known technique to a known device that was ready for improvement to yield a predictable result.”). According to Petitioner, the relevant artisan would have had a reasonable expectation of success “because Spivey contemplates being implemented in a digital content delivery system such as Herzog, stating that it can be used with ‘any well-known communication techniques and protocols, such as techniques suitable for use with packet-switched networks (e.g., public networks such as the Internet, private networks such as the enterprise intranet, and so forth).” Pet. 75 (quoting Ex. 1017 ¶ 155) (citing Ex. 1001 ¶ 130).

Patent Owner argues that Petitioner’s proposed combination would not result in reduced latency and would not be attempted. PO Resp. 1, 6–7. In particular, Patent Owner contends that Herzog *requires* “a robust latency period during which Herzog performs its timestamp synchronization techniques.” *Id.* at 6 (citing Ex. 2040 ¶¶ 46–47). That is, “Herzog does not have a latency problem,” instead, “latency is a feature, not a bug,” and “[a]ttempting to reduce, modify or otherwise tamper with such disparate latencies period would destroy a fundamental principle of operation of Herzog.” *Id.*

Based on the complete record before us, we find Patent Owner's contentions more availing. In particular, as Patent Owner points out, Herzog recognizes that latency issues may exist, and thus, in order to address latency between the video/audio stream and metadata stream, Herzog synchronizes the two types of streams. Ex. 1015 ¶¶ 56, 58, 64. As Patent Owner explained during Oral Argument, Herzog "never reduces the video latency," but instead latency "is used by Herzog to match up the timestamps of the data and the video." Tr. 54:6–14. That is, as Patent Owner explains, and as supported by the teachings of Herzog and Dr. Rubin's testimony, "Herzog's stated goal is matching timestamped video/audio streams with timestamped meta-data streams at a mobile device," which "relies on the projected latency period to synchronize the video/audio stream with the metadata stream." PO Resp. 57–58 (citing Ex. 1015 ¶¶ 56, 64, 74, 82; Ex. 2001 ¶¶ 141, 206–208, 283, 289).

We find availing Patent Owner's argument that Petitioner's proposed combination departs from the express teachings of Herzog because Herzog "needs the projected latency period to perform synchronization between audio/video data and meta-data." PO. Resp. 61 (citing Ex. 1015 ¶¶ 74, 82; Ex. 2041 ¶¶ 30, 33–34). Here, Herzog describes that "total latency in the video/audio data stream may be greater than 63 seconds," and "[t]he metadata, on the other hand, includes a latency that is less than a total of 2 seconds." Ex. 1015 ¶ 82. As Patent Owner argues, although Petitioner contends that it would have been obvious to "upgrade" Herzog's "data delivery system to reduce latency" (Pet. 74), Petitioner "does not even address the latency caused by Herzog's audio/video stream." PO Resp. 55. We find availing Patent Owner's argument that Petitioner's position "does

not meet the motivation that one would use to combine these references,” since, as the data accumulates, the combined system “creates cumulative delays that defeats Herzog’s premise.” Tr. 54:21–55:13.

Although “[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton” (*KSR*, 550 U.S. at 421), there may be limits in a particular case as to how much gap-filling may be based on such creativity. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016); *DSS Tech. Mgmt., Inc. v. Apple Inc.*, 885 F.3d 1367, 1374–75 (Fed. Cir. 2018) (reliance on ordinary creativity to supply a missing limitation requires the same “searching” inquiry as reliance on common sense).

We find Petitioner has not met its burden to prove that the relevant artisan “looking to improve Herzog’s latency issues, would have looked to implement a system such as Spivey.” Pet. 74. Specifically, although Petitioner relies on Spivey to improve latency (Pet. 74), as Patent Owner points out, Herzog “needs the projected latency period to perform synchronization between audio/video data and meta-data.” PO. Resp. 61; *see* Ex. 1015 ¶¶ 74, 82. Thus, to “upgrade” Herzog’s “data delivery system to reduce latency” (Pet. 74) without addressing the latency caused by Herzog’s audio/video stream (PO Resp. 55) requires gap-filling. Thus, we find Petitioner’s contention that the relevant artisan would have implemented Spivey “to improve Herzog’s latency issues” (Pet. 74) lacks rational underpinning and sufficient support in the record.

We find Petitioner’s explanation in its Reply insufficient to support Petitioner’s position. Pet. Reply 18–21. In its Reply, Petitioner acknowledges that “video data must have latency” (Ex. 1064 ¶ 30 (cited at Pet. Reply 19)), but makes a conclusory statement that the relevant artisan

“would have known that reducing the data-distribution latency would have improved the system’s capabilities.” Pet. Reply 18. However, although such references explain “reducing the data-distribution latency,” Petitioner does not explain sufficiently why the relevant artisan would have combined such teachings in Spivey to obtain the synchronization between the video/audio stream and the meta-data stream as required by Herzog. PO. Resp. 61. Without evidentiary support, we are left with speculation and impermissible hindsight. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967). We decline to engage in speculation. *See, e.g., In re Vaidyanathan*, 381 F. App’x 985, 993 (Fed. Cir. 2010); *In re Wallen*, 565 F. App’x 867, 869 (Fed. Cir. 2014), both citing *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001) ([T]he Board must point to some concrete evidence in the record in support of these findings.”).

2. Conclusion

Based on the complete record before us, we find Petitioner’s proffered reasons for combining Herzog and Spivey to achieve the subject limitations lack rational underpinning, and that Petitioner’s proposed combination of teachings plainly takes into account knowledge gleaned only from applicant’s disclosure, i.e., impermissible hindsight. *See In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971). Accordingly, we determine that Petitioner has *not* demonstrated by a preponderance of the evidence that any of claims 16–20, 23, 24, and 29 would have been unpatentable as obvious over the combination of Herzog and Spivey.

IV. PETITIONER’S MOTION TO EXCLUDE

Petitioner moves to exclude “paragraph 315 [sic: 312]” of Dr. Rubin’s Declaration (Ex. 2001) and Exhibits 2006–2016 submitted therewith because

each item “relates to Patent Owner’s unreliable and impermissible evidence of secondary indicia of non-obviousness.” Exclude Mot. 1. Petitioner argues that Dr. Rubin’s testimony “relies on inadmissible hearsay evidence (Exhibits 2015 and 2016).” *Id.* Patent Owner then argues that Exhibits 2006, 2007, 2010, 2015, and 2016 are “unauthenticated documents under [Federal Rules of Evidence] FRE 901” and “inadmissible hearsay,” while Exhibits 2008, 2009, and 2011–2014 are “unauthenticated documents under FRE 901.” *Id.* at 1–2.

Patent Owner responds by arguing that “Petitioner has failed to establish any basis to exclude the challenged evidence.” Exclude Opp. 1. Petitioner argues that “concerns about authentication or hearsay are typically handled through weight, not wholesale exclusion.” *Id.* We agree with Patent Owner.

Although Petitioner argues that a portion of Dr. Rubin’s Declaration and Exhibits submitted therewith should be excluded because they relate to “unreliable and impermissible evidence” (Exclude Mot. 1– 2), such arguments are directed to the evidence’s weight, rather than its admissibility. As the Board has previously indicated, “there is a strong public policy for making all information filed in an administrative proceeding availing to the public.” *See Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.*, CBM2012-00010, Paper 59 at 40 (PTAB February 24, 2014). Here, as to Dr Rubin’s testimony and supporting exhibits, the Board, sitting as a non-jury tribunal with administrative expertise, is well positioned to determine and assign appropriate weight to evidence presented. *See, e.g., Donnelly Garment Co. v. NLRB*, 123 F.2d 215, 224 (8th Cir. 1941) (“One who is capable of ruling accurately upon the admissibility of evidence is equally capable of sifting it

accurately after it has been received.”). Thus, in this proceeding, the better course is to have a complete record of the evidence to facilitate public access as well as appellate review. *See id.* (“If the record on review contains not only all evidence which was clearly admissible, but also all evidence of doubtful admissibility, the court which is called upon to review the case can usually make an end of it, whereas if evidence was excluded which that court regards as having been admissible, a new trial or rehearing cannot be avoided.”).

On this record, we deny Petitioner’s Motion to Exclude.

V. CONCLUSION

Petitioner has met its burden to show, by a preponderance of the evidence, that all of the Challenged Claims (i.e., claims 16–30) are unpatentable.⁴ We deny Petitioner’s Motion to Exclude. Our conclusions are summarized in the following table.

⁴ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
16–30	103	Ellis, Spivey	16–30	
21, 22, 27, 28	102	Herzog	21, 22, 27, 28	
25, 26, 30	103	Herzog, Ellis	25, 26, 30	
16–20, 23, 24, 29	103	Herzog, Spivey		16–20, 23, 24, 29
Overall Outcome			16–30	

VI. ORDER

For the foregoing reasons, it is:

ORDERED that claims 16–30 of U.S. Patent No. 11,039,218 B1 are unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Exclude is *denied*; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to this 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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