

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.

IPR2024-01307
Patent 10,805,687 B2

Before BARBARA A. PARVIS, JOHN A. HUDALLA, and
SHARON FENICK, *Administrative Patent Judges*.

HUDALLA, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

Genius Sports Ltd. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 19–25 and 27–30 (“the challenged claims”) of U.S. Patent No. 10,805,687 B2 (Ex. 1003, “the ’687 patent”). Petitioner filed a Declaration of Stephen B. Wicker, Ph.D. (Ex. 1001) with its Petition. SportsCastr Inc. d/b/a PANDA Interactive (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”). Patent Owner filed a Declaration of Aviel Rubin, Ph.D. (Ex. 2001) with its Preliminary Response.

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2023). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the petition and the preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons that follow, we institute an *inter partes* review as to claims 19–25 and 27–30 of the ’687 patent on all grounds of unpatentability presented.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies Genius Sports Ltd. as the real party-in-interest. Pet. 3. Patent Owner identifies SportsCastr Inc. as the real party-in-interest. Paper 4, 1.

B. *Related Matters*

As required by 37 C.F.R. § 42.8(b)(2), the parties identify the following related matters:

IPR2024-01307
Patent 10,805,687 B2

SportsCastr Inc. v. Sportradar Group, AG, 2:23-cv-00472 (E.D. Tex. filed Oct. 5, 2023);

SportsCastr Inc. v. Genius Sports Ltd., No. 2:23-cv-04771 (E.D. Tex. filed Oct. 5, 2023) (“the underlying litigation”);

IPR2024-01305;¹

IPR2024-01308;

IPR2024-01309;

IPR2024-01310; and

IPR2024-01311.

Pet. 3–4; Paper 4, 1.

C. The '687 Patent

The '687 patent is titled “Systems, Apparatus, and Methods for Scalable Low-Latency Viewing of Broadcast Digital Content Streams of Live Events, and Synchronization of Event Information with Viewed Streams, via Multiple Internet Channels.” Ex. 1003, code (54). The '687 patent relates to systems and methods that facilitate providing live stream video and/or audio broadcasts to viewers in real time. *Id.* at 2:57–66. Figure 1A of the '687 patent is reproduced below.

¹ Of note, Petitioner concurrently filed another petition challenging claims 1–9 of the '687 patent in IPR2024-01305. Pet. 3–4; Paper 3, 3. Petitioner also filed a ranking of the two petitions in which it ranked the instant Petition first and the petition in IPR2024-01305 second. Paper 3, 3. Notwithstanding, Patent Owner does not put forth any arguments seeking discretionary denial under 35 U.S.C. § 314(a) related to Petitioner’s use of more than one petition against the '687 patent. Moreover, we are satisfied by Petitioner’s stated reasons for filing two petitions. *See* Paper 3, 2–3.

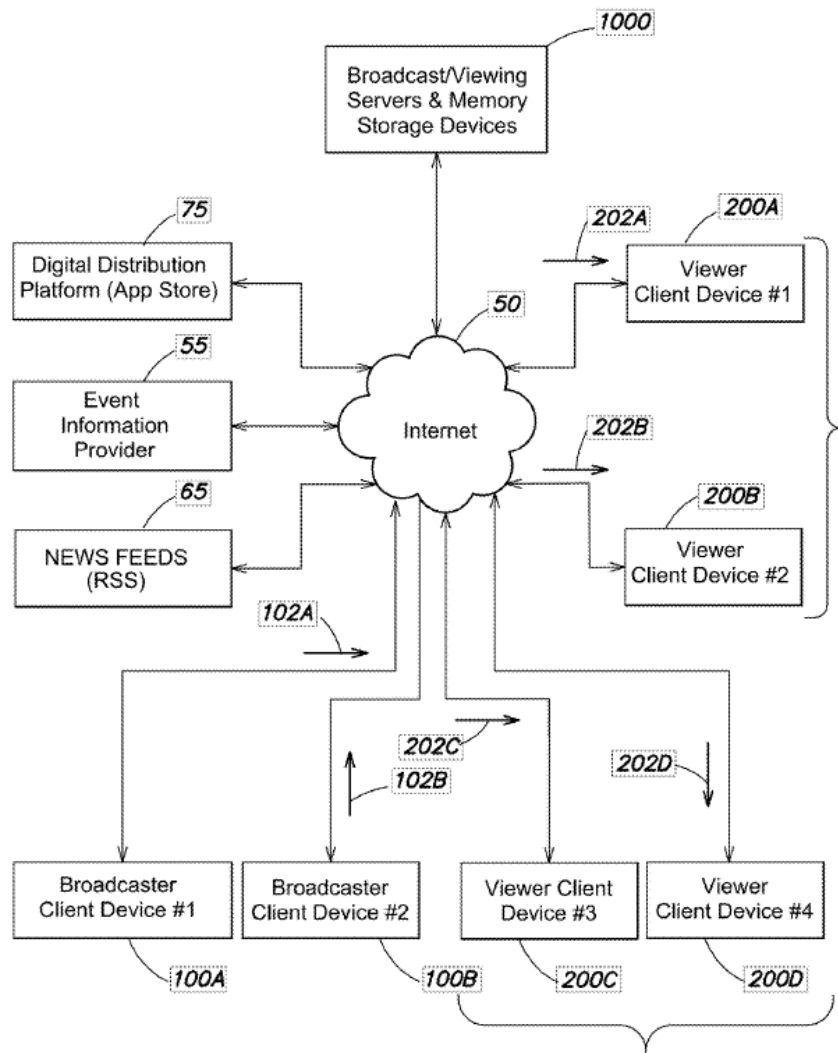


FIG. 1A

Figure 1A is a block diagram of a system facilitating live streaming digital content from multiple broadcasters to multiple viewers. *Id.* at 11:19–22. 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. *Id.* at 14:52–60. 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 15:21–28. 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 15:28–33. 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 15:33–40.

Figure 2 of the '687 patent is reproduced below.

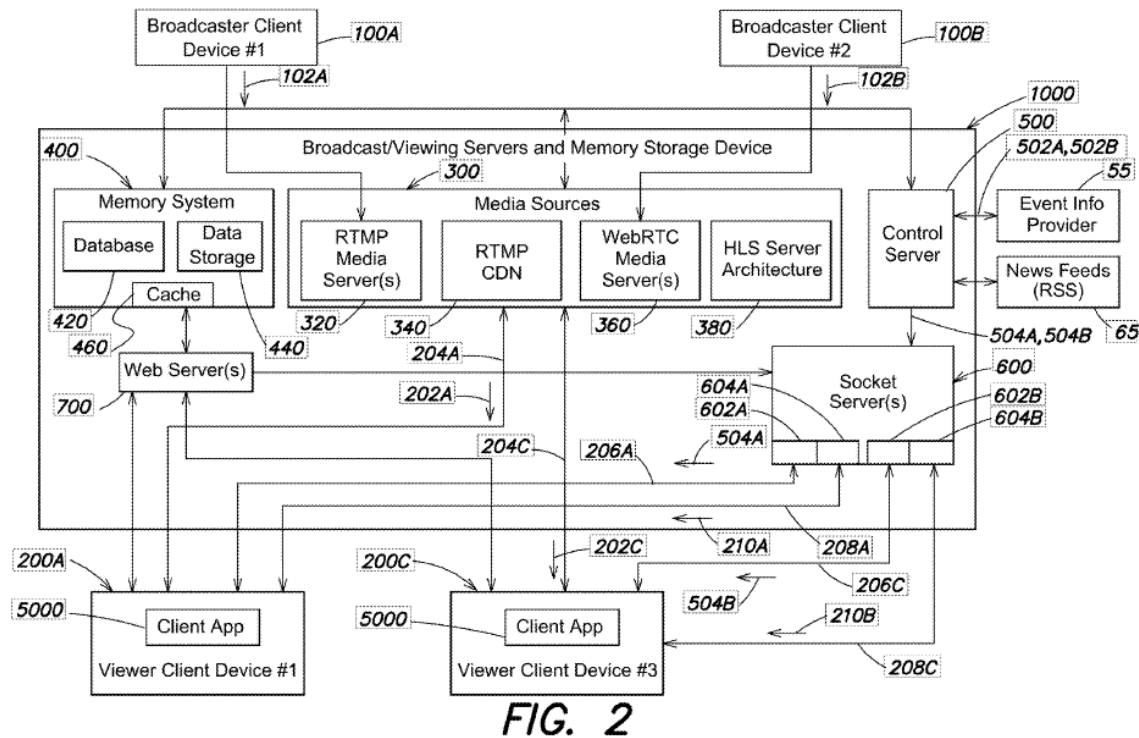


Figure 2 is a block diagram of broadcast/viewing servers and memory storage devices 1000 in the system of Figure 1A. Ex. 1003, 11:26–28, 18:36–44. Servers/memory storage devices 1000 include, in relevant part, a plurality of media sources 300, control server 500, one or more web servers 700, and socket server 600. *Id.* at 18:55–62, 19:17–20:15. 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 19:17–23. Web server 700 supports an application programming interface to facilitate communication between servers/memory storage devices 1000 and client devices. *Id.* at 18:55–62. 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 19:51–55. Socket servers 600 facilitate communication of synchronized event information retrieved by control server 500 to broadcaster and viewer client devices. *Id.* at 20:10–15. 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 21:47–62. 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 22:2–16.

The application that led to the '687 patent was filed on September 24, 2019, and claims priority via continuation applications to a PCT patent application filed on August 7, 2017. Ex. 1003, codes (22), (63). The application that led to the '687 patent also claims priority to, *inter alia*, a provisional application filed on August 5, 2016. *Id.*, code (60). Petitioner contends the asserted references “qualif[y] as prior art under 35 U.S.C. §102 regardless of whether the '687 [patent] is entitled to its earliest provisional filing date.” Pet. 5 n.3. Accordingly, we apply the August 7, 2017, PCT patent application date (“effective filing date”) for determining whether the asserted references qualify as prior art.

D. Illustrative Claim

Of the challenged claims, claims 19, 23, and 27 are independent. Claims 20–22 depend directly or indirectly from claim 19; claims 24 and 25 depend from claim 23; and claims 28–30 depend from claim 27. Claim 19 is illustrative of the challenged claims and recites:

19. [19.0] A system for providing a first plurality of copies of a first live stream of digital content relating to a first live sporting event to a first plurality of viewer client devices, and for providing a second plurality of copies of a second live stream of digital content relating to a second live sporting event to a second plurality of viewer client devices, the system comprising:

[19.1] A) a plurality of media sources to:

[19.2] receive the first live stream of digital content and the second live stream of digital content;

[19.3] provide a first copy of the first plurality of copies to a first viewer client device of the first plurality of viewer client devices via a first Internet communication channel between the plurality of media sources and the first viewer client device of the first plurality of viewer client devices; and

[19.4] provide a first copy of the second plurality of copies to a first viewer client device of the second plurality of viewer client devices via a second Internet communication channel between the plurality of media sources and the first viewer client device of the second plurality of viewer client devices;

[19.5] B) a control server to periodically retrieve, via the Internet, first event information germane to the first live

sporting event and second event information germane to the second live sporting event; and

[19.6] C) at least one socket server communicatively coupled to the control server to:

[19.7] receive from the control server at least some of the first event information and at least some of the second event information; and

[19.8] transmit the at least some of the first event information to the first viewer client device of the first plurality of viewer client devices via a third Internet communication channel between at least one first event socket of the at least one socket server and the first viewer client device of the first plurality of viewer devices; and

[19.9] transmit the at least some of the second event information to the first viewer client device of the second plurality of viewer client devices via a fourth Internet communication channel between at least one second event socket of the at least one socket server and the first viewer client device of the second plurality of viewer devices.

Ex. 1001, 62:56–63:33 (Petitioner’s identifiers added in brackets).

E. Prior Art

Petitioner relies on the following prior art:

U.S. Patent Application Publication No. 2015/0163379 A1, filed Dec. 11, 2013, published June 11, 2015 (Ex. 1015, “Herzog”);

U.S. Patent Application Publication No. 2014/0229992 A1, filed Apr. 22, 2014, published Aug. 14, 2014 (Ex. 1016, “Ellis”); and

U.S. Patent Application Publication No. 2016/0036910 A1, filed Aug. 4, 2014, published Feb. 4, 2016 (Ex. 1017, “Spivey”).

F. The Asserted Grounds

Petitioner challenges claims 19–25 and 27–30 of the ’687 patent based on the following grounds (Pet. 6):

Claims Challenged	35 U.S.C. §	References
19–25, 27–30	103 ²	Ellis, Spivey
19–25, 27–30	103	Herzog, Ellis, Spivey

II. ANALYSIS

We now consider Petitioner’s asserted grounds and Patent Owner’s arguments to determine whether Petitioner has met the “reasonable likelihood” standard for institution under 35 U.S.C. § 314(a).

A. Legal Standards

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. *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) where in evidence, so-called

² 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 ’687 patent’s earliest claim of priority is made to an application filed after March 16, 2013 (the effective date of the relevant amendments), the AIA versions of §§ 102 and 103 apply. *See* Ex. 1003, codes (60), (63).

secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

B. Level of Ordinary Skill in the Art

Citing testimony from Dr. Wicker, Petitioner contends a person of ordinary skill in the art “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. 15 (citing Ex. 1001 ¶¶ 72–76). Patent Owner cites testimony from Dr. Rubin and contends that an ordinarily skilled 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.” Prelim. Resp. 10 (citing Ex. 2001 ¶ 103).

The differences between the parties’ definitions are minor, as recognized by Dr. Rubin (*see* Ex. 2001 ¶ 105), and we do not discern any meaningful differences based on the preliminary record. Accordingly, for purposes of this Decision, we adopt Patent Owner’s definition of the level of ordinary skill in the art. On the present record, we are satisfied that this definition of the level of skill is consistent with the teachings of the

'687 patent and the asserted prior art. Notwithstanding, we would reach the same determination under Petitioner's formulation of the level of skill.

C. Claim Interpretation

In an *inter partes* review, we construe each claim using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), 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). Accordingly, our claim construction standard is the same as that of a district court. *See id.* Under the standard applied by district courts, claim terms are generally given their plain and ordinary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). "There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

Petitioner contends that all claim terms should be given their plain and ordinary meaning. Pet. 6. Petitioner also argues that an ordinarily skilled artisan would have known that a "socket" is "a uniquely addressable communication endpoint on a server where first/second event information is provided to VCDs [viewer client devices]." *Id.* at 39 (citing Ex. 1001 ¶ 352). Thus, Petitioner argues that an "event socket" is "a socket where

information about each sporting event is provided to VCDs.” *Id.* Petitioner additionally proposes constructions for certain means-plus-function limitations in claims 27–30. Pet. 7–9.

Regarding the means-plus-function limitations in claims 27–30, Patent Owner argues that only relevant construction pertains to this limitation of claim 27: “means for transmitting the first event information to at least the first viewer client device via a first event information communication channel that is different from the first video communication channel.” Prelim. Resp. 8–10. Patent Owner agrees with Petitioner’s construction of this term but notes certain additional citations that Patent Owner contends supports the construction. *Id.* at 9–10. Otherwise, Patent Owner states that “the Board need not construe any claim terms aside from the means-plus-function limitations.” *Id.* at 8.

For purposes of this Decision, we apply Petitioner’s constructions of “socket” and “event socket.” Regarding the means-plus-function limitations in claims 27–30, we apply all of Petitioner’s constructions with one exception. Specifically, based on the structure and dependency of claim 30, we determine preliminarily that the preamble of claim 30 is non-limiting and does not require construction as a means-plus-function limitation. We determine that no other aspects of the challenged claims require explicit construction. *See, e.g., 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 Ground Based on Ellis and Spivey

Petitioner contends that claims 19–25 and 27–30 would have been obvious over the combination of Ellis and Spivey. Pet. 19–60. Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 22–46, 61–72.

1. Ellis

Ellis is a U.S. patent application publication titled “Systems and Methods for Providing Enhanced Sports Watching Media Guidance” that discloses systems and methods for accessing and displaying enhanced sports-related media content. Ex. 1016, codes (54), (57). Figure 1 of Ellis is reproduced below.

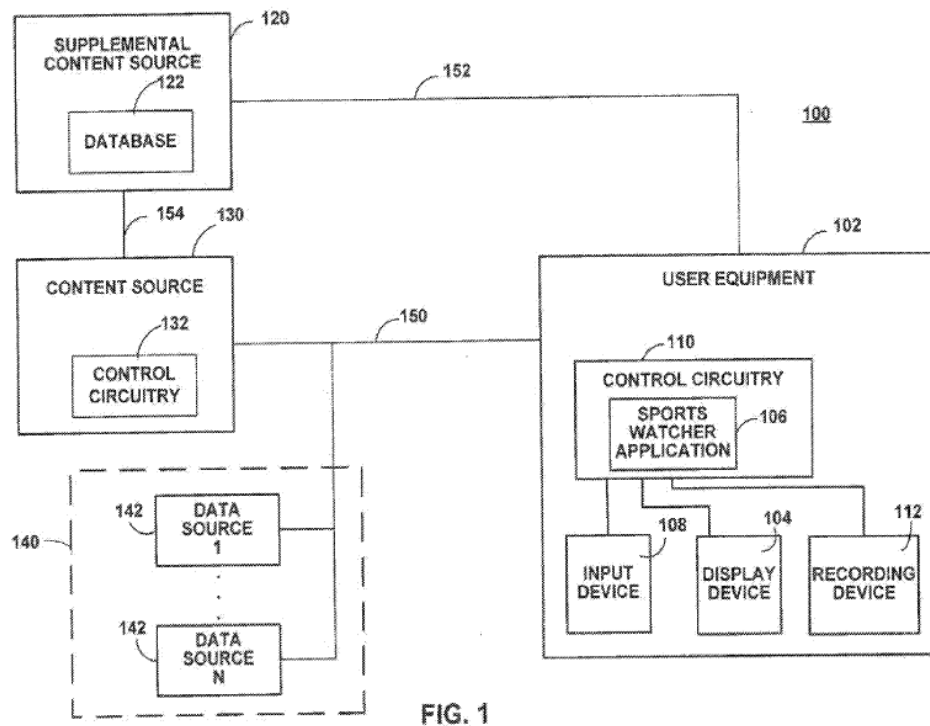


Figure 1 is a block diagram illustrating interactive media system 100. *Id.* ¶¶ 15, 39. Interactive media system 100 including user equipment 102, content source 130, supplemental content source 120, and data sources 140.

Id. ¶ 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.

Petitioner notes that Ellis was published on August 14, 2014, and contends that Ellis qualifies as prior art under 35 U.S.C. § 102(a). Pet. 5. Patent Owner does not dispute the prior art status of Ellis at this juncture. For purposes of this Decision, we determine that Ellis qualifies as prior art under 35 U.S.C. § 102(a) because Ellis’s publication date of August 14, 2014, is before the effective filing date of the challenged claims, which is August 7, 2017. Ex. 1003, code (63); Ex. 1016, code (43).

2. *Spivey*

Spivey is a U.S. patent application publication titled “Techniques to Broadcast Live Event Data in Real-Time” that 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.

System 100

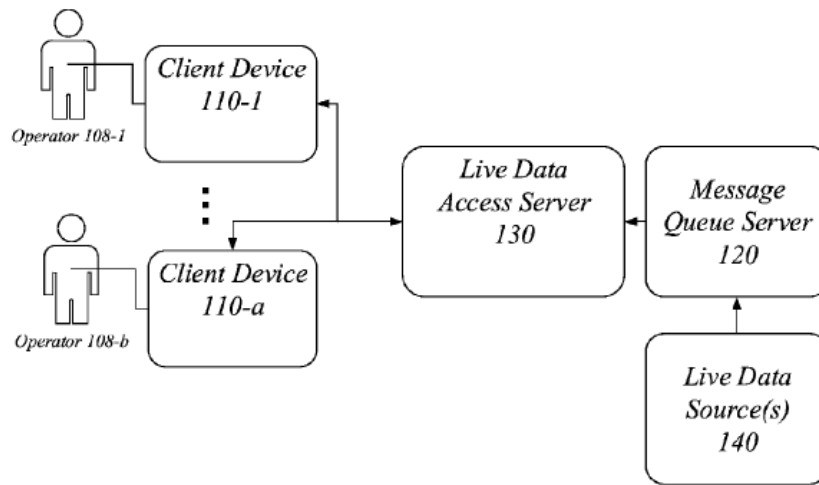


FIG. 1

Figure 1 shows system 100 for broadcasting live event data including client devices 110-1 through 110-a, message queue server 120, and live data access server 130 coupled via one or more networks. *Id.* ¶¶ 3, 34. Message queue server 120 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 is reproduced below.

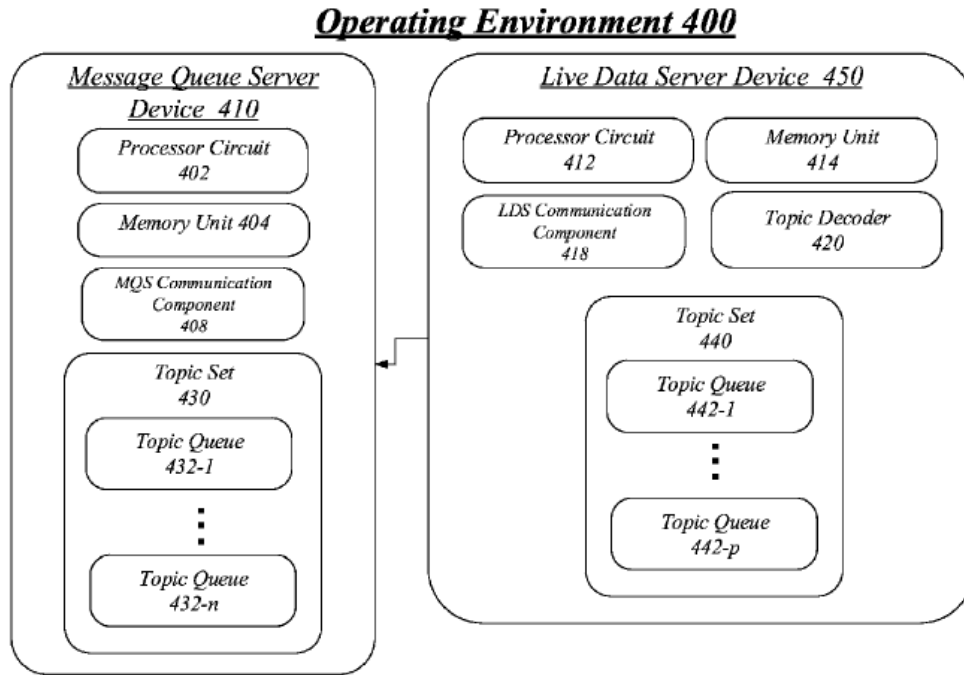


FIG. 4

Figure 4 shows operating environment 400, in which message queue server 120 is implemented as message queue server device 410 and live data server device 450. Ex. 1017 ¶¶ 6, 53. Message queue server device 410 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.

Petitioner notes that Spivey was published on February 4, 2016, and contends that Spivey qualifies as prior art under 35 U.S.C. § 102(a). Pet. 6. Patent Owner does not dispute the prior art status of Spivey at this juncture. For purposes of this Decision, we determine that Spivey qualifies as prior art under 35 U.S.C. § 102(a) because Spivey's publication date of February 4,

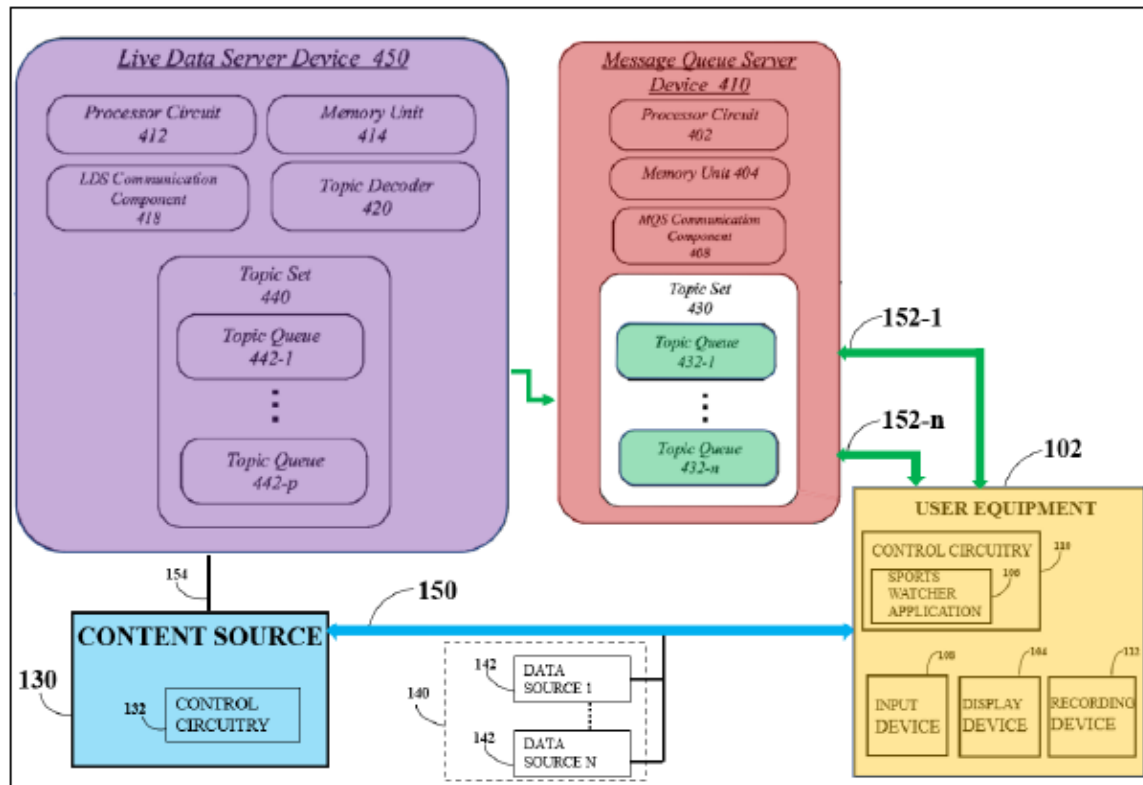
2016, is before the effective filing date of the challenged claims, which is August 7, 2017. Ex. 1003, code (63); Ex. 1017, code (43).

3. *Claim 19*

a. Rationale for the Combination

Petitioner notes Spivey’s teaching that “some live-event data delivery systems, such as Ellis’s, suffer from latency issues.” Pet. 20 (citing Ex. 1001 ¶¶ 107–108); *see also* Ex. 1001 ¶¶ 95, 107 (citing Ex. 1017 ¶¶ 27–28) (discussing Spivey’s disclosures about the problem of latency for live event data). Petitioner further notes Spivey’s teaching that a live data server device (LDSD) and message queue server device (MQSD) “could provide live-event data to any number of customers in milliseconds.” Pet. 20 (citing Ex. 1001 ¶ 109; Ex. 1017 ¶¶ 27–28). Thus, Petitioner contends that an ordinarily skilled artisan “would have implemented Spivey into Ellis’s current data delivery system by replacing Ellis’s SCS with Spivey’s LDSD and adding the MQSD to achieve a predictable result of decreased latency data delivery using a websocket connection in lieu of HTTPS.” Pet. 21 (citing Ex. 1001 ¶¶ 109–111; Ex. 1016 ¶¶ 39, 41, Fig. 1; Ex. 1017, Fig. 4).

Petitioner provides the following illustration of its conception of the combined system.



Pet. 21–22. In this illustration from the Petition, Petitioner has modified Ellis’s Figure 1 such that Spivey’s live data server device 450 and message queue server device 410 from Spivey’s Figure 4 replace supplemental content source 120 in Ellis’s Figure 1. *Id.* (citing Ex. 1001 ¶ 111; Ex. 1016, Fig. 1; Ex. 1017, Fig. 4). According to Petitioner, the modification “would maintain Ellis’s video content delivery system and upgrade the data delivery system to reduce latency.” *Id.* at 22 (citing Ex. 1001 ¶ 111).

Petitioner contends an ordinarily skilled artisan would have combined Ellis and Spivey because they both are related to “content delivery for real-time events” and both “solve the same or similar problems, namely, providing video and/or event data to multiple users over the Internet quickly.” Pet. 22 (citing Ex. 1001 ¶¶ 112–114; Ex. 1016 ¶¶ 39–40, 156,

176; Ex. 1017, code (57), ¶ 27). Petitioner further contends that Spivey complements Ellis insofar as Spivey provides “details of the backend architecture for transmitting event data to multiple users.” *Id.* at 23 (citing Ex. 1001 ¶ 115; Ex. 1017, code (57)). Petitioner additionally contends that “[c]ombining certain portions of Ellis and Spivey would have been obvious because doing so would require only the simple substitution of known elements for another to obtain predictable results.” *Id.* (citing Ex. 1001 ¶ 114).

Patent Owner argues that Petitioner’s proposed combination is inoperable because it removes Ellis’s source of the supplemental content data (i.e., supplemental content source 120 and database 122) and “thereby eliminates the very functionality—data delivery—Petitioner proposes to upgrade.” Prelim. Resp. 25 (citing Ex. 1016 ¶¶ 41–43; Ex. 2001 ¶¶ 195–198). Patent Owner also argues that Petitioner’s proposed combination is inoperable because Spivey “fails to address video delivery” and “how immediately pushed data could somehow be throttled or gated in a manner to synchronize with any associated television programming.” *Id.* at 24 (citing Ex. 2001 ¶¶ 201–212).

In addition, Patent Owner disputes Petitioner’s rationale for combining Spivey with Ellis. Specifically, Patent Owner argues that “Petitioner manufactures a data latency problem in Ellis, without any explanation as to why a[n ordinarily skilled artisan] would understand one to exist.” Prelim. Resp. 27 (citing Ex. 2001 ¶¶ 214–215). Patent Owner also criticizes Petitioner’s rationale as cursory to the extent it is based on Ellis’s and Spivey’s alleged common teachings of “content delivery for real time events.” *Id.* at 28 (citing Pet. 22). Further, contrary to Petitioner’s

assertions, Patent Owner also disputes that Ellis and Spivey solve the similar problem of “providing video and/or event data to multiple users over the Internet quickly and to multiple users.” *Id.* (citing Pet. 22). Patent Owner further disputes that Ellis and Spivey “disclose complementary means of achieving the common goal of synchronizing multiple forms of data—including video/audio and event data.” *Id.* at 29 (citing Pet. 22–23). Patent Owner additionally argues that the fact that Spivey might provide a complementary solution for Ellis’s backend architecture would not have been obvious unless the results are predictable, and Petitioner has not established as much. *Id.* at 30–31. Patent Owner further argues that an ordinarily skilled artisan would not have had a reasonable expectation of success because of “the fundamental incompatibility of Spivey’s immediate ‘push’ data delivery and Ellis’s video delivery,” which allegedly “would have decreased performance.” *Id.* at 31 (citing Ex. 2001 § VI.A.1).

Patent Owner also argues that Petitioner has engaged in impermissible hindsight when combining Spivey with Ellis. Prelim. Resp. 31–35. In particular, Patent Owner argues that, “absent reference to the blueprint of the ’687 patented claims,” an ordinarily skilled artisan “would not have been prompted to remove both of Ellis’s supplemental content *source* and *database* and replace those components with a multi-component messaging architecture cherry-picked from an alternative embodiment of Spivey.” *Id.* at 32 (citing Ex. 2001 § VI.A.1). Patent Owner also argues that Ellis at most teaches synchronization of broadcast and other event information to a single viewer, whereas the ’687 patent is directed to synchronization across multiple client devices. *Id.* at 34–35 (citing Ex. 1016 ¶ 70). As such, Patent Owner argues an ordinarily skilled artisan “would not [have] attempt[ed] to

implement Spivey’s messaging queue architecture in Ellis” without engaging in hindsight. *Id.* at 34.

For the reasons given below, we find that Petitioner’s arguments are supported sufficiently by the evidence in the preliminary record before us at this early juncture, and that Patent Owner’s arguments do not undermine Petitioner’s showing. For example, we are persuaded preliminarily that Petitioner’s proposed combination would have improved latency issues in Ellis’s system. *See* Pet. 19–23; Ex. 1001 ¶¶ 106–115. This is supported by Spivey’s disclosure 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 disagree with Patent Owner (Prelim. Resp. 27) that “Petitioner manufactures a data latency problem in Ellis, without any explanation as to why a[n ordinarily skilled artisan] would understand one to exist.” The portion of Spivey cited by Petitioner describes that its techniques reduce latency, thus “providing a significant advantage over the conventional practices.” Ex. 1017 ¶ 28; *see also id.* ¶ 96 (describing improvements of “at

least two orders of magnitude” as compared to “conventional time periods of legacy devices”). This teaching shows sufficiently, for purposes of institution, that artisans in the field would have known to consider the problem of latency in delivering live data. Moreover, Patent Owner’s argument that Ellis pertains to “viewing and tuning” and Spivey is not relevant to “how sports viewers commonly watch and interact with displayed sporting events” (Prelim. Resp. 28–29), as well as Dr. Rubin’s related testimony (Ex. 2001 § VI.A.1, ¶¶ 220–223), are based on only a subset of the teachings of both references, rather than the teachings of the references in their entirety. For example, Ellis describes providing real-time data such as sports scores (*see, e.g.*, Ex. 1016 ¶ 41), and Spivey describes that its live data feeds are generated by computing devices associated with a live event (Ex. 1017 ¶ 37). We are mindful that the teachings of the references must be considered as a whole, from the perspective of an ordinarily skilled artisan. *See Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361 n.3 (Fed. Cir. 2008) (“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 1038, 1041 (Fed. Cir. 1986) (noting that when evaluating claims for obviousness, “the prior art as a whole must be considered”).

Furthermore, Ellis and Spivey are complementary insofar as they both are directed to content delivery for real-time events 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 132 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”). Ellis and Spivey also both disclose that content is provided over the internet. For instance, 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.” Ex. 1016 ¶¶ 45, 74. Spivey additionally 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” and that the subscribed client device receives data over “a websocket connection.”

Ex. 1017, code (57), ¶¶ 43, 61, 74, 92. Based on the present record, these teachings appear to contradict Patent Owner’s assertions (Prelim. Resp. 26–31) that the references are not complementary, or else that Petitioner did not adequately address differences between the references.

We also disagree with Patent Owner’s argument (Prelim. Resp. 25–26) that Petitioner’s proposed combination is inoperable because Petitioner’s proposed combination removes the source of supplemental content, Ellis’s database 122, and replaces it with “a database-less system of Spivey.” In particular, Ellis describes database 122 as being optional: “sports-related information *may be* stored in database 122.” Ex. 1016, Fig. 1, ¶ 42 (emphasis added). Thus, even if Petitioner’s proposed combination lacked a database, we do not understand this to be a fatal flaw in the manner suggested by Patent Owner. Further, we note that 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. Spivey also 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). These teachings from Spivey support that an

ordinarily skilled artisan would have known how to provide data to Petitioner's proposed system.

We further disagree with Patent Owner (Prelim. Resp. 24–25) that the proposed combination is inoperable because Spivey's teachings "are not tied to video delivery" and Petitioner does not address "how immediately pushed data could somehow be throttled or gated in a manner to synchronize with any associated television programming." Patent Owner's argument (*id.*) and Dr. Rubin's related testimony (Ex. 2001 ¶¶ 171–172, 201–212) are not consistent with evidence that Spivey describes its teachings as associated with broadcasting a live event. For example, Spivey's system 100 broadcasts "live event data in real-time" and includes "a subscription component . . . to receive a topic entry from a message queue server, and to push the topic entry to a subscribed client device." Ex. 1017, code (57). Spivey also describes that its live data sources are "associated with a live event." *Id.* ¶ 37; *see also id.* ¶ 48 (describing that the topic entry "may include any media information about at least one of a live event (e.g., news, game, sport, activity, and so forth)"). Additionally, the challenged claims do not recite that the first event information must be gated or synchronized with the first live sporting event, so this argument is not commensurate with the scope of the challenged claims.

Patent Owner's remaining arguments that Petitioner relies on impermissible hindsight bias to "reconstruct the invention" from "cherry-picked" prior art teachings (Prelim. Resp. 31–35) and Dr. Rubin's related testimony (Ex. 2001 § VI.A.1, ¶¶ 195–197) are premised on many of the same arguments we find unavailing at this stage. As discussed above, Petitioner's argument that its proposed combination would have been made

to improve latency issues in Ellis’s system (Pet. 19–23) is supported by Spivey’s disclosures. Spivey describes, for example, 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. As shown in Figure 1 of Spivey, live data source(s) 140 is connected to client devices 110-1 through 110-a via message queue server 120 and live data access server 130. *Id.* at Fig. 1. Spivey describes that Figure 4 illustrates an embodiment of message queue server 120. *Id.* ¶ 53. Thus, based on the preliminary record, we find that Petitioner’s proposed substitution of message queue server device 410 and live data server device 450 into Ellis is consistent with Petitioner’s rationale to combine the teachings of Ellis and Spivey, which is to reduce latency.

Finally, for reasons similar to those mentioned above, we disagree with Patent Owner (Prelim. Resp. 22, 25, 27, 29, 31) that Petitioner fails to establish that an ordinarily skilled artisan reasonably would have expected success when combining Spivey with Ellis. We are persuaded preliminarily that the use of a websocket connection in Petitioner’s combination predictably would have resulted in decreased latency. *See, e.g.*, Ex. 1001 ¶¶ 109–111. Petitioner also has shown sufficiently, for purposes of institution, that the combination represents the substitution of known elements for one another (i.e., substituting “Spivey’s LDS and MQSD” for “portions of Ellis’s SCS”), which would yield predictable results. *See, e.g., id.* ¶¶ 114–115.

Based on the preliminary record, we find that Petitioner provides a sufficient rationale for combining the teachings of Ellis and Spivey. We also

find that Petitioner has shown sufficiently for purposes of institution that a person of ordinary skill in the art would have had a reasonable expectation of success.

b. Preamble 19.0

The preamble of claim 19 recites

[a] system for providing a first plurality of copies of a first live stream of digital content relating to a first live sporting event to a first plurality of viewer client devices, and for providing a second plurality of copies of a second live stream of digital content relating to a second live sporting event to a second plurality of viewer client devices.

Ex. 1003, 62:56–62. Petitioner cites Ellis’s system for providing “enhanced information access and viewing functionality for sports-related programming” including “a sporting event, sports news, or sports commentary.” Pet. 24 (citing Ex. 1016 ¶¶ 8, 11). Petitioner notes that Ellis’s system simultaneously provides to each of multiple users individual copies of live broadcast programming from one or more content sources. *Id.* at 24–25 (citing Ex. 1016 ¶¶ 39, 40, 45, 62–63, Fig. 2B).

Patent Owner does not dispute Petitioner’s analysis of the preamble at this time. Based on the present record, we are persuaded preliminarily that Ellis teaches the preamble.³ *See, e.g.*, Ex. 1016 ¶¶ 8, 11, 39, 40, 45, 62–63, Fig. 2B.

³ Because Petitioner shows sufficiently for purposes of institution that Leaning teaches the preamble, we need not determine whether the preamble is limiting. *See Realtime Data*, 912 F.3d at 1375.

c. Limitation 19.1

Claim 1 further recites “A) a plurality of media sources to” perform various steps. Ex. 1003, 62:63. Petitioner cites Ellis’s teaching of “any suitable source of media content” such as an “Internet or network media/web server, or any other suitable facility or system for originating or distributing passive or interactive content to user equipment.” Pet. 26 (citing Ex. 1016 ¶ 40). Petitioner further Ellis’s teaching of numerous instances of content source 130 distributing video content to users over communication path 150. *Id.* at 26–27 (citing Ex. 1016 ¶¶ 39–41, Fig. 1).

At this juncture, Patent Owner does not dispute Petitioner’s analysis of this limitation. Based on the present record, Petitioner has shown sufficiently that Ellis teaches a plurality of different sources of media content. *See, e.g.*, Ex. 1016 ¶¶ 39–41, Fig. 1.

d. Limitation 19.2

Claim 19 further recites that the plurality of media sources “receive the first live stream of digital content and the second live stream of digital content.” Ex. 1001, 62:64–65. Petitioner again cites Ellis’s teaching of using multiple streams of media content, including those from television broadcasts and media servers, and of allowing a user to watch more than one event. Pet. 27–28 (citing Ex. 1016 ¶ 40, 45, 61–62, 74).

At this juncture, Patent Owner does not dispute Petitioner’s analysis. Based on the present record, we are persuaded preliminarily that Ellis teaches this limitation. *See, e.g.*, Ex. 1016 ¶¶ 40, 45, 61–62, 74.

e. Limitations 19.3 and 19.4

Claim 19 further recites that the plurality of media sources provide a first copy of the first plurality of copies to a first viewer client device of the first plurality of viewer client devices via a first Internet communication channel between the plurality of media sources and the first viewer client device of the first plurality of viewer client devices; and provide a first copy of the second plurality of copies to a first viewer client device of the second plurality of viewer client devices via a second Internet communication channel between the plurality of media sources and the first viewer client device of the second plurality of viewer client devices.

Ex. 1003, 62:66–63:10. For the viewer client devices, Petitioner cites Ellis’s teaching of an “‘interactive media system’ where ‘any suitable number of users’ may ‘select any game from the listing’ of ‘available games’ to ‘watch the selected game.’” Pet. 28 (citing Ex. 1016 ¶¶ 39, 94). Petitioner notes that this may result in different groups of users watching different content. *Id.* (citing Ex. 1001 ¶ 340; Ex. 1016 ¶¶ 55, 61–62, 132, Fig. 2B). Petitioner also cites Ellis’s teaching of an internet server providing a stream over any “suitable wired or wireless path,” such as the internet. *Id.* at 29 (citing Ex. 1016 ¶¶ 39, 45). According to Petitioner, each user would receive an individual copy of the live stream of digital content over a unique internet connection between the content source and the user equipment. *Id.* at 29–30 (citing Ex. 1001 ¶¶ 342–343; Ex. 1016 ¶ 74).

At this juncture, Patent Owner does not dispute Petitioner’s analysis. Based on the present record, we are persuaded preliminarily that Ellis teaches these limitations. *See, e.g.*, Ex. 1016 ¶¶ 39, 40, 45, 48, 55, 61, 62, 74, 94, 132, Fig. 2B.

f. Limitation 19.5

Claim 19 further recites “(B) a control server to periodically retrieve, via the Internet, first event information germane to the first live sporting event and second event information germane to the second live sporting event.” Ex. 1003, 63:11–14. For the “control server,” Petitioner cites Ellis’s supplemental content source, which “comprises one or more processors, memory devices, and communication interfaces.” Pet. 30 (citing Ex. 1001 ¶ 345). Petitioner contends that the supplemental content source periodically retrieves, for multiple live sporting events, “real-time sports scores and game summary information, . . . spread and wagering data, and any other sports-related information” because it provides this information to user equipment. *Id.* at 30–31 (quoting Ex. 1016 ¶ 41) (citing Ex. 1001 ¶ 345; Ex. 1016 ¶¶ 72, 117). Petitioner also contends that an ordinarily skilled artisan would have known that “this information is retrieved via the internet because that is how real-time data was transferred to users at the time of Ellis and Spivey—including score updates and wagering information.” *Id.* at 31 (citing Ex. 1001 ¶ 345; Ex. 1016 ¶¶ 42, 142).

Petitioner further argues that, to the extent Ellis does not teach limitation 19.5, Spivey’s live data server device (LDSD) teaches the recited “control server.” Pet. 32–33 (citing Ex. 1017, Fig. 4). Petitioner contends that Spivey’s LDSD “is a generic server comprising one or more processors, memory devices, and communication interfaces.” *Id.* at 33 (citing Ex. 1001 ¶ 346; Ex. 1017, Fig. 4). According to Petitioner, “[t]he LDSD contains an LDS communication component that allows LDSD to receive live data and transmit the data payloads to MQS device 410” and the received data

includes “sports scores and breaking news.” *Id.* at 33–34 (internal quotation omitted) (citing Ex. 1017 ¶¶ 27, 48, 55, 66).

At this juncture, Patent Owner does not dispute Petitioner’s analysis. We note that Petitioner’s proposed combination does not incorporate Ellis’s supplemental content source and, instead, replaces Ellis’s supplemental content source with Spivey’s live data server database and message queue server device. *See* Pet. 21–22. Thus, at this preliminary stage, we are not persuaded by Petitioner’s contentions regarding Ellis’s supplemental content source for teaching limitation 1.5 because, based on the current record, Petitioner has not shown sufficiently how Ellis’s supplemental content source would be part of Petitioner’s proposed combination. Notwithstanding, we are persuaded preliminarily that Spivey’s live data server device teaches limitation 1.5. *See, e.g.*, Ex. 1001 ¶ 374 (discussing multiple sporting events); Ex. 1017 ¶¶ 27, 48, 55, 66, Fig. 4.

g. Limitation 19.6

Claim 19 further recites “C) at least one socket server communicatively coupled to the control server.” Ex. 1003, 63:15–16. Petitioner cites Spivey’s message queue server device (MQSD) for teaching the recited “socket server.” *See* Pet. 35–37. Petitioner contends Spivey’s MQSD “is a generic server that contains processors, memory, and communication components” that “‘receive[s]’ and ‘process[es] live data to provide live data’ to ‘the subscribed connected client devices substantially simultaneously.’” *Id.* at 35–36 (quoting Ex. 1017 ¶¶ 36, 96) (citing Ex. 1017 ¶¶ 35, 45, 53, 54, Figs. 3, 4). Petitioner further contends that Spivey’s MQSD is communicatively coupled to the LDS (i.e., the “control server”)

through Spivey's MQS communication component and LDS communication component. *Id.* at 36–37 (citing Ex. 1017 ¶¶ 46, 54–55). Thus, according to Petitioner, Spivey's MQSD receives live event data from the LDS, which just “receive[d] live data.” *Id.* at 37 (quoting Ex. 1017 ¶ 55) (citing Ex. 1017 ¶ 54, Fig. 4).

At this juncture, Patent Owner does not specifically dispute Petitioner's analysis for limitation 1.6.⁴ Based on the present record, Petitioner has shown sufficiently that Spivey's MQSD teaches the recited “socket server.” *See, e.g.*, Ex. 1017 ¶¶ 35–36, 45, 53, 54, 96, 165, Figs. 3, 4.

h. Limitation 19.7

Claim 19 further recites that the socket server “receive[s] from the control server at least some of the first event information and at least some of the second event information.” Ex. 1003, 63:17–19. Continuing the same analysis from above, Petitioner contends that Spivey's LDS (i.e., the “control server”) “receive[s] live data and transmit[s] the data payloads” to the MQSD (i.e., the “socket server”). Pet. 37 (quoting Ex. 1017 ¶ 55). Petitioner further cites Spivey's teaching that data payloads may include “a score, a player name, a play, and so forth.” *Id.* at 37–38 (quoting Ex. 1017 ¶ 117) (citing Ex. 1017, Fig. 10). Echoing its analysis from limitation 19.5 above, Petitioner contends that data from at least two different live events is transferred to the MQSD. *Id.* at 38 (citing Ex. 1001 ¶¶ 350, 376); *see also supra* § II.D.3.e.

⁴ We note that Patent Owner disputes Petitioner's analysis of a related claim term, i.e., “event socket,” for limitations 19.8 and 19.9. We discuss those arguments below. *See infra* § II.D.3.i.

At this juncture, Patent Owner does not specifically dispute Petitioner’s analysis for limitation 1.7.⁵ Based on the present record, Petitioner has shown sufficiently that Spivey’s MQSD (i.e., the “socket server”) receives live event data (e.g., scores, player names) from the LDS (i.e., the “control server”). *See, e.g.*, Ex. 1001 ¶¶ 350, 376; Ex. 1017 ¶¶ 55, 117.

i. Limitations 19.8 and 19.9

Claim 19 further recites that the socket server

transmit[s] the at least some of the first event information to the first viewer client device of the first plurality of viewer client devices via a third Internet communication channel between at least one first event socket of the at least one socket server and the first viewer client device of the first plurality of viewer devices; and

transmit[s] the at least some of the second event information to the first viewer client device of the second plurality of viewer client devices via a fourth Internet communication channel between at least one second event socket of the at least one socket server and the first viewer client device of the second plurality of viewer devices.

Ex. 1003, 63:20–33. Petitioner contends that an ordinarily skilled artisan “would have understood a ‘socket’ to be a uniquely addressable communication endpoint on a server where first/second event information is provided to a VCD [viewer client device].” Pet. 39 (citing Ex. 1001 ¶ 352). Petitioner contends that the recited “first event socket” and “second event socket” are each “a socket where information about one sporting event is

⁵ We note that Patent Owner disputes Petitioner’s analysis of a related claim term, i.e., “event socket,” for limitations 19.8 and 19.9. We discuss those arguments below. *See infra* § II.D.3.i.

provided to VCDs.” *Id.* Thus, Petitioner maps the event sockets to Spivey’s topic queues in the LDSO “where data payloads are placed.” *Id.* (quoting Ex. 1017 ¶¶ 51–52). Petitioner notes that each topic queue has a corresponding “topic label” (e.g., “gamecenter.nfl.ravenssteelers”), which identifies a topic queue and is used by a client device “to connect and subscribe to MQSD’s topic queues.” *See* Pet. 39–41 (citing Ex. 1017 ¶¶ 49, 66, 81–84, 96, Fig. 9).

As part of that analysis, Petitioner contends that “client devices ‘request a live data connection’ with the MQSD by ‘select[ing] or enter[ing] the address or connection information to a particular’ MQSD.” Pet. 39–40 (quoting Ex. 1017 ¶¶ 81–82). Petitioner acknowledges that Spivey actually mentions “a connection between the client device and the system using a live data access server (‘LDAS’)” rather than the MQSD, but Petitioner cites certain passages from Spivey and Dr. Wicker’s testimony in support of its contention that Spivey’s “message queue server device may be ‘accessible to clients over the network directly.’” *Id.* at 40 n.7 (citing Ex. 1001 ¶ 354; Ex. 1017 ¶¶ 36, 38, 46, 84).

For transmitting the first and second event information to the first viewer client device of the first and second plurality of viewer client devices, Petitioner cites Spivey’s teaching that the MQSD “may push data from topic queues . . . to the subscribers of the topics corresponding to those topic queues.” Pet. 42 (quoting Ex. 1017 ¶ 46). Petitioner also cites Ellis’s teaching that the supplemental content source may be configured “to provide real-time sports scores and game summary information . . . to user equipment 102.” *Id.* (quoting Ex. 1016 ¶ 41).

For transmitting via third and fourth internet communication channels between the first and second event sockets and the first viewer client device of the first and second plurality of viewer devices, Petitioner cites Spivey’s teaching of sending “live event data in real-time.” Pet. 42 (quoting Ex. 1017, code (57)). Petitioner notes that Spivey’s MQSD may be an internet server that communicates over the internet. *Id.* (citing Ex. 1017 ¶¶ 35, 179). Petitioner further cites Spivey’s teaching that client devices “may request and participate in a websocket connection,” which “typically comprises a two-way connection between two entities.” *Id.* (quoting Ex. 1017 ¶¶ 43, 61). Petitioner also cites Ellis’s teaching of “providing event information over a separate communication path 152 than the video signal 150.” *Id.* (quoting Ex. 1016 ¶¶ 39–41, Fig. 1).

Patent Owner disputes that the combination teaches the recited “event socket.” Prelim. Resp. 35–45. First, Patent Owner argues that Spivey does not disclose a websocket connection between its message queue server and client devices. *Id.* at 36 (citing Ex. 1017 ¶¶ 43, 61; Ex. 2001 ¶¶ 225–228). Instead, according to Patent Owner, Spivey discloses a websocket connection between a live data access server—which Petitioner has omitted from the combination—and client devices. *Id.* (citing Pet. 38–41, 49–50, 56–57; Ex. 1017 ¶¶ 43, 61, 74; Ex. 2001 ¶¶ 229–233).

Based on the present record, we do not agree with Patent Owner’s arguments. Spivey teaches that clients “may request and participate in a websocket connection,” i.e., “a two-way connection between two entities.” Ex. 1017 ¶¶ 43, 61. Notwithstanding, the parties’ declarants offer competing testimony as to whether Spivey teaches a websocket connection between Spivey’s message queue server device and the client devices. *See*

Ex. 1001 ¶ 354 & n.9; Ex. 2001 ¶¶ 223, 227–230. The relevant issue is whether Spivey requires an intermediary live access data server. Although we agree with Patent Owner that certain embodiments of Spivey depict a live data access server connected to client devices (*see, e.g.*, Ex. 1017, Fig. 1), we also find that Spivey teaches or at least suggests a direct connection between the message queue server device and client devices without an intermediary live data access server.

We agree with Petitioner (Pet. 40 n.7) that Spivey suggests the intermediary live data access server is optional. Specifically, Spivey discloses that “system 100 *may* include a live data access server 130.” Ex. 1017 ¶ 38 (emphasis added). Spivey also teaches that MQS communication component 308, which is included in message queue server device 310, “may . . . 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 of the topics corresponding to those topic queues.*” *Id.* ¶ 46 (emphasis added). We also have considered Patent Owner’s argument that “it is unclear how Spivey’s message queue server device 410, which lacks an interface through which it could communicate with client devices, could include the claimed event socket.” Prelim. Resp. 39. Yet Spivey discloses user interface 900 presented by live data app 210 residing on client device 200 that “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.” Ex. 1017 ¶ 84, Figs. 2, 9. Taken together, these passages better support Petitioner’s and Dr. Wicker’s assertions at this stage that Spivey at least suggests a direct connection between the message queue server device and client devices. Pet. 37 n.6; Ex. 1001 ¶ 354. We

also credit preliminarily Petitioner’s reason to omit the live data access server, which is to reduce latency consistent with Spivey’s purpose. *Id.*

Patent Owner also argues that “Petitioner fails to show that Spivey’s topic queues are ‘*event sockets*’ under Petitioner’s (and its [declarant’s]) implied definition, which requires them to be ‘uniquely addressable communication endpoint[s].’” *Id.* at 39–40; *see also* Pet. 39 (citing Ex. 1001 ¶ 352) (discussing a “uniquely addressable communication endpoint”). Rather, Patent Owner argues that Spivey’s topic queues “are internal to its MQS [message queue server]” and “lack any address at all through which they communicate.” Prelim. Resp. 40–41 (citing Ex. 2001 ¶¶ 240–241).

As discussed above, we apply Petitioner’s construction of “socket” and “event socket” for purposes of this Decision. *See supra* § II.C. We have considered Patent Owner’s argument that “Spivey’s ‘topic queue’ is merely an organization of data, such as a database table, that includes information about a particular topic” and not a communication endpoint. Prelim. Resp. 41–42. Dr. Rubin likewise testifies that a person of ordinary skill in the art “would not consider such a database, message queue, or any other internal data structure by themselves to be a ‘uniquely addressable communication endpoints’” and that “[t]he only potential ‘communication endpoint’ Spivey discloses as being ‘uniquely addressable’ is the live data access server.” Ex. 2001 ¶¶ 241–242. In contrast, Dr. Wicker testifies as follows:

[I]nformation is provided via a connection between a topic queue and the first user equipment device of the first/second plurality of user devices. 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, in my opinion a[n ordinarily skilled artisan] would have understood that Ellis in view of Spivey discloses distributing event information from a first/second event socket of the socket server to a first user device of a first/second plurality of user devices over an internet connection. Further, it is my opinion that a[n ordinarily skilled 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 ¶ 602.

Based on the preliminary record, we find that Petitioner’s arguments and Dr. Wicker’s testimony are supported by Spivey’s disclosures that an “address may resemble a uniform resource locator (URL)” and user interface 900 that “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. On the other hand, we find that Dr. Rubin’s testimony is limited to addressing live data access server 130 and does not address sufficiently Spivey’s teachings as a whole when understood from the perspective of an ordinarily skilled artisan. *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.”); *Hedges*, 783 F.2d at 1041 (noting that when evaluating claims for obviousness, “the prior art as a whole must be considered”). Therefore, we give Dr. Rubin’s testimony less weight than Dr. Wicker’s testimony at this preliminary stage. Accordingly, we are persuaded preliminarily by Petitioner’s contention that the recited “event socket” is taught by Spivey’s disclosures of a websocket connection and of data payloads placed on Spivey’s topic queues that “relate to a specific game

between two NFL teams” and include “for example, a score, a play, . . . , and so forth.” *See, e.g.*, Ex. 1017 ¶¶ 43, 48–49, 51–52, 61, 66, Fig. 9.

For these reasons, Petitioner has shown sufficiently that the combination of Ellis and Spivey teaches limitations 19.8 and 19.9.

j. Secondary Considerations of Nonobviousness

Patent Owner asserts that objective indicia of nonobviousness support its position that Petitioner has not shown a reasonable likelihood of unpatentability of the challenged claims. *See* Prelim. Resp. 61–72. Specifically, Patent Owner asserts long-felt need, industry praise, copying, and commercial success support Patent Owner’s position.

To accord substantial weight to objective evidence of nonobviousness, the evidence must have a nexus to the claims. *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019). “A showing of nexus can be made in two ways: (1) via a presumption of nexus, or (2) via a showing that the evidence is a direct result of the unique characteristics of the claimed invention.” *Volvo Penta of the Americas, LLC v. Brunswick Corp.*, 81 F.4th 1202, 1210 (Fed. Cir. 2023). A patentee is entitled to a presumption of nexus “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Fox Factory*, 944 F.3d at 1373 (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)). As discussed below, Patent Owner has not established a sufficient nexus between the challenged claims and Patent Owner’s asserted objective indicia of nonobviousness. We also identify certain other deficiencies in Patent Owner’s evidence.

Patent Owner does not attempt to show that a particular product embodies and is coextensive with the claimed features, so Patent Owner is not entitled to a presumption of nexus. *See Fox Factory*, 944 F.3d at 1373. And, to the extent Patent Owner attempts to address direct nexus, we find Patent Owner’s remaining arguments to be conclusory and based on oversimplified characterizations of the claimed technology. *See, e.g.*, Prelim. Resp. 66 (stating without explanation that evidence of industry praise “result[s] directly from the claims—*i.e.*, the architecture discussed above (including a socket server and control server), as well as the system’s ability to “*provid[e] a first/second plurality of copies of a first/second live stream of digital content*” (*e.g.*, Claim 19)”), 71–72 (stating without explanation that evidence of industry praise was “a direct result of the claimed invention”). At this juncture, we accord little to no weight to Patent Owner’s evidence of nexus between the proffered objective evidence and the claims of the ’687 patent.

Although Patent Owner alleges copying, Patent Owner does not name a particular product of Petitioner’s that allegedly copied Patent Owner’s products. *See* Prelim. Resp. 66–68. Rather, Patent Owner merely cites to a 50-page infringement claim chart from the related parallel proceeding. *Id.* at 67 (citing Ex. 2001 ¶ 320; Ex. 2017). Patent Owner is reminded that “[a]rguments must not be incorporated by reference from one document into another document.” 37 C.F.R. § 42.6(a)(3). At this stage, we decline to “play archeologist with the record” in order to understand Patent Owner’s arguments, which “is precisely what the rule against incorporation by reference was intended to prevent.” *Gen. Access Sols., Ltd. v. Sprint Spectrum L.P.*, 811 F. App’x 654, 657–58 (Fed. Cir. 2020). Further,

Dr. Rubin merely cites the claim chart at Exhibit 2017 and states that he “understand[s] that Patent Owner contends that the Petitioner launched its own sport’s [sic] streaming platform and incorporated the claimed invention into its own products.” Ex. 2001 ¶ 320. He does not appear to have developed his own opinion regarding Petitioner’s products. *Id.* For these reasons, and based on the present record, we accord Patent Owner’s evidence of copying little to no weight.

Patent Owner’s evidence also suffers from other deficiencies. For example, Patent Owner’s evidence (Prelim. Resp. 62–64) does not establish *long felt* and *unsolved* need. Dr. Rubin cites an article from 2015 describing “[b]roadcast latency [being] recognized by stream platforms around [the] mid-2010s” (Ex. 2001 ¶ 73 (citing Ex. 2034)), but the ’687 patent claims priority to provisional applications filed in 2016 and 2017. Ex. 1003, code (60), 1:20–40. Moreover, certain of Patent Owner’s industry praise evidence quotes former NBA commissioner David Stern (Prelim. Resp. 64–65), but he is described as “one of SportsCastr.Live’s high-profile partners” and “a founding investor.” Ex. 2006, 2; Ex. 2008. His interest in Patent Owner undermines that his views represent those of the “industry.” Finally, Patent Owner acknowledges that commercial success is established by showing significant sales of the patented product, but Patent Owner does not cite any evidence of such significant sales. *See* Prelim. Resp. 68–72 (citing *Ormco Corp. v. Align Technology, Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006)).

For the above reasons, we accord Patent Owner’s evidence of secondary considerations of nonobviousness little to no weight at this juncture.

k. Conclusion Regarding Claim 19

Petitioner has shown sufficiently at this juncture that the combination of Ellis and Spivey teaches all limitations of claim 19. Petitioner also has put forth a sufficient rationale for combining Spivey with Ellis with a reasonable expectation of success. We also have considered Patent Owner's evidence of secondary considerations of nonobviousness, and we accord it little or no weight at this juncture. Based on the present record, we determine that Petitioner has established a reasonable likelihood that it would prevail in showing that the invention of claim 19 as a whole would have been obvious over the combination of Ellis and Spivey.

4. *Claims 20–22*

We have reviewed Petitioner's analysis for claims 20–22, which depend directly or indirectly from claim 19. Pet. 43–49. Patent Owner relies on the same arguments discussed above. We are persuaded preliminarily by Petitioner's analysis for claims 20–22. Based on the present record, Petitioner has established a reasonable likelihood that it would prevail in showing that the inventions of claims 20–22 as a whole would have been obvious over the combination of Ellis and Spivey.

5. *Claims 23–25*

Petitioner's analysis for independent claim 23 incorporates some of the same analysis from claim 19. Pet. 49–50. Further, we have reviewed Petitioner's analysis for claims 24 and 25, which each depend from claim 23. Pet. 50–55. Patent Owner relies on the same arguments discussed above. We are persuaded preliminarily by Petitioner's analysis for

claims 23–25. Based on the present record, Petitioner has established a reasonable likelihood that it would prevail in showing that the inventions of claims 23–25 as a whole would have been obvious over the combination of Ellis and Spivey.

6. *Claims 27–30*

Claims 27–30 all recite means-plus-function limitations. Ex. 1003, 66:10–46. For purposes of these comments, we apply Petitioner’s proposed constructions of the means-plus-function limitations except for the recitation in the preamble of claim 30, which we treat as non-limiting. *See* Pet. 7–9; *supra* § II.C.

We have reviewed Petitioner’s analysis for independent claim 27, which incorporates some of the same analysis from claim 19. Pet. 55–57. We also have reviewed Petitioner’s analysis for claim 29, which depends from claim 27. *Id.* at 58. Patent Owner relies on the same arguments discussed above. We are persuaded preliminarily by Petitioner’s analysis for claims 27 and 29. Based on the present record, Petitioner has established a reasonable likelihood that it would prevail in showing that the inventions of claims 27 and 29 as a whole would have been obvious over the combination of Ellis and Spivey.

Claim 28 depends from claim 27 and recites “means for transmitting and receiving first chat information regarding the first live sporting event via at least one first chat/system event Internet communication channel that is different from the first video communication channel and the first event information communication channel.” Ex. 1003, 66:22–27. Petitioner’s proposed corresponding structure for this limitation is “Socket Server

performing the algorithm disclosed in 20:27-35 and Figure 2 of the '687 [patent].” Pet. 8. The portion of the specification describing the algorithm states the following:

[O]ne or more sockets of the socket server(s) 600 dedicated to the particular broadcaster’s live stream allow respective client devices used by the broadcaster and their viewers to establish a chat/system event channel with the socket server(s), *such that chat messages/system event information is shared in a synchronized manner by the broadcaster of the live stream and corresponding viewers of copies of the live stream.*

Ex. 1003, 20:27–35 (emphasis added).

The algorithm identified as performing the recited function is described as sharing chat messages “in a synchronized manner.” *Id.* Yet Petitioner’s contentions for this limitation do not appear to address how the combination of Ellis and Spivey teaches synchronized chat. *See* Pet. 46–48, 58. Thus, based on the present record, Petitioner has not shown sufficiently that the combination of Ellis and Spivey teaches the recited “means for transmitting and receiving first chat information” of claim 28. We determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the invention of claim 28 as a whole would have been obvious over the combination of Ellis and Spivey.

Claim 30 recites, *inter alia*, “an HTTP live streaming (HLS) mother server,” “a first HLS file suite,” “a plurality of HLS child servers,” and “an HLS content delivery network (HLS CDN).” Ex. 1003, 66:33–46. Petitioner cites Ellis’s disclosure of “a generic server,” feeding “multiple systems at multiple facilities,” and a “media system or network.” Pet. 58–60 (citing, *inter alia*, Ex. 1001 ¶¶ 47, 410; Ex. 1016 ¶ 47). In light of these disclosures, and given that Ellis teaches “streaming video from [a] content

source . . . over the internet,” Petitioner contends that a person of ordinary skill in the art “would have understood Ellis, filed in 2014, teaches all forms of standard internet transmission protocols, including HLS streaming.” *Id.* at 58–59 (citing Ex. 1001 ¶ 408; Ex. 1016 ¶¶ 40, 74; Ex. 1028, 1⁶).

The portions of Ellis cited by Petitioner for teaching streaming video over the internet are broad and do not mention HLS. *See* Ex. 1016 ¶¶ 40, 74. Based on the present record, we are not persuaded by Petitioner’s assertion that a person of ordinary skill in the art would have understood Ellis alone to teach HLS based on such broad teachings. *See* Ex. 1001 ¶ 408. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the invention of claim 30 as a whole would have been obvious over the combination of Ellis and Spivey.

Notwithstanding our preliminary determinations for claims 28 and 30, we will be instituting on all grounds and all claims raised in the Petition. *See* 37 C.F.R. § 42.108(a).

E. Obviousness Grounds Based on Herzog, Ellis, and Spivey

Petitioner contends that claims 19–25 and 27–30 would have been obvious over the combination of Herzog, Ellis, and Spivey. Pet. 60–88. Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 46–72.

⁶ Petitioner and Dr. Wicker cite page 1 of Exhibit 1028 to support that “HLS is a data transmission format adopted in 2009 to provide video feeds over the internet.” Pet. 58; Ex. 1001 ¶ 407. But HLS is not mentioned on that page. Further, to the extent Exhibit 1028 mentions HLS in other places, we do not see any reference to HLS being adopted as a transmission format in 2009.

1. Herzog

Herzog is a U.S. patent application publication titled “Time Synchronization of Video and Data Inside a Mobile Device” that 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 is reproduced below.

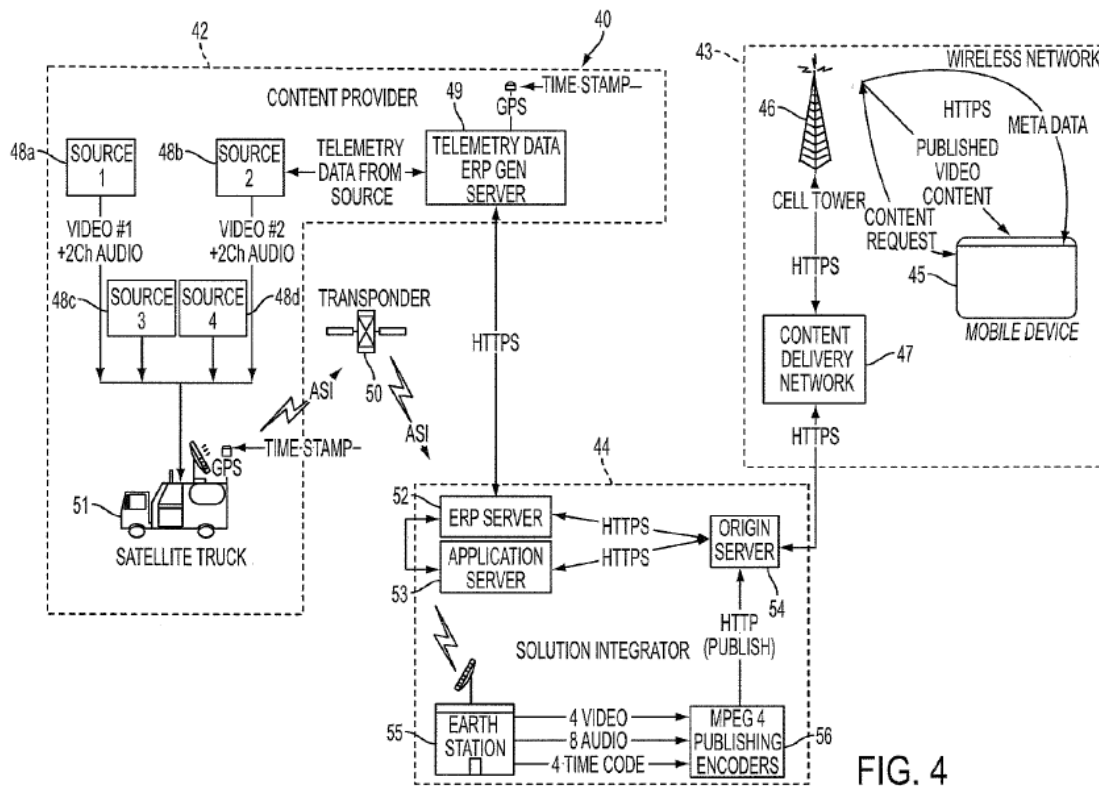


FIG. 4

Figure 4 shows system 40 that provides communications to mobile device 45 in wireless network 43 via content delivery network 47. Ex. 1015 ¶¶ 9, 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. *Id.* ¶ 47. ERP generator server 49 extracts meta-data parameters that may be of interest to a user, formats the extracted meta-data into an 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.

Petitioner notes that Herzog was published on June 11, 2015, and contends that Herzog qualifies as prior art under 35 U.S.C. § 102(a). Pet. 6. Patent Owner does not dispute the prior art status of Herzog at this juncture. For purposes of this Decision, we determine that Herzog qualifies as prior art under 35 U.S.C. § 102(a) because Herzog’s publication date of June 11, 2015, is before the effective filing date of the challenged claims, which is August 7, 2017. Ex. 1003, code (63); Ex. 1015, code (43).

2. *Claim 19*

a. Rationale for the Combination

Similar to the Ellis–Spivey ground discussed above (*see supra* § II.D.3.a), Petitioner contends that an ordinarily skilled 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. 62 (citing Ex. 1001 ¶¶ 126, 142–143). As such, Petitioner contends an ordinarily skilled artisan would have incorporated Spivey’s message queue server device (MQSD) into Herzog’s origin server “to achieve full-duplex communications between a client and a remote host with low latency.” *Id.* at

62–63 (citing Ex. 1001 ¶¶ 80–87), 75 (citing Ex. 1001 ¶ 456). Petitioner further contends that an ordinarily skilled artisan “would have appreciated the benefits associated with Spivey’s MQSD (*i.e.*, socket server) which establishes websocket connections with client devices, including convenient and efficient full-duplex communications between a client and a remote host with low latency,” thus improving “Herzog’s latency issues.” *Id.* at 63 (citing Ex. 1001 ¶ 144; Ex. 1017 ¶¶ 27–28, 43, 61, 74, 92, 96). According to Petitioner, an ordinarily skilled artisan “would have had a reasonable expectation of success in combining Herzog with Spivey because Spivey contemplates being implemented in a digital content delivery system such as Herzog.” *Id.* at 64 (citing Ex. 1001 ¶ 147; Ex. 1017 ¶ 155). Petitioner also cites the complementary nature of the references and the simple substitution of known elements as supporting the predictable success of the combination. *Id.* at 64–65 (citing Ex. 1001 ¶¶ 147–148).

Petitioner additionally contends that, “[t]o the extent Herzog does not specifically describe multiple live event streaming,” an ordinarily skilled artisan “would have found it obvious to implement such functionality into Herzog/Spivey, as taught by Ellis.” Pet. 65 (citing Ex. 1001 ¶ 155–157; Ex. 1016 ¶¶ 39–41, Fig. 2B). In particular, Petitioner cites Ellis’s teaching of providing multiple live streams of digital content from two different live sporting events. *Id.* at 67–68 (citing Ex. 1016 ¶¶ 62–63, Figs. 2B, 4). Petitioner contends that an ordinarily skilled artisan “would have understood that Herzog was already equipped to provide multiple different live video and meta-data streams,” and an ordinarily skilled artisan “would have been motivated to configure Herzog with Ellis’s multiple event functionality because . . . users would enjoy having more content options, *e.g.*, multiple

live event streams, chat information, and advertising content.” *Id.* at 65 (citing Ex. 1001 ¶ 157; Ex. 1016 ¶¶ 39–41, 62, Figs. 1, 2B). Petitioner notes that Herzog “already provides multiple live streams,” so an ordinarily skilled artisan “would have understood that adding a second live event to Herzog . . . applies a known technique to a known device that was ready for improvement to yield a predictable result.” *Id.* at 66 (citing Ex. 1001 ¶ 158).

Patent Owner disputes that an ordinarily skilled artisan would have combined Spivey with Herzog. Prelim. Resp. 47–55. Specifically, Patent Owner argues that Petitioner’s proposed combination is inoperable and departs from the express teachings of Herzog. *Id.* at 48–51. In particular, Patent Owner argues that “Herzog’s system *requires* a robust latency period to achieve its stated goal: matching timestamped video/audio streams with timestamped meta-data streams at a mobile device.” *Id.* at 48 (citing Ex. 1015 ¶¶ 56, 64, 74; Ex. 2001 ¶¶ 290–293). Patent Owner also puts forth arguments similar to those for the Spivey–Ellis ground disputing that an ordinarily skilled artisan would have incorporated elements from Spivey to solve a latency problem in Herzog. *Id.* at 52–55. Patent Owner additionally disputes that an ordinarily skilled artisan would have combined Ellis with Herzog. Prelim. Resp. 55–56. According to Patent Owner, “Petitioner’s proposals rest on conclusory statements that provide no guidance for how, exactly, Herzog would work in the context of a multi-event system, especially as the Herzog teachings are limited to a single event.” *Id.* (citing Ex. 2001 § VI.B.2); *see also id.* at 51 (similar argument). Patent Owner also argues that Petitioner fails to explain “how the time stamp matching techniques of Herzog would be workable” given “the exponential technical

complexity involved in time stamp matching across multiple live events.”
Id. at 56; *see also id.* at 51 (similar argument).

Based on the present record, we are persuaded preliminarily by Petitioner’s reasons for combining Spivey and Ellis with Herzog. We start with Petitioner’s contention that an ordinarily skilled artisan would have implemented Herzog’s origin server as a websocket server based on Spivey’s teachings in order to improve latency. Pet. 60–65. Petitioner’s contention is supported by the same disclosures in Spivey that were discussed with respect to the Ellis–Spivey ground. *See supra* § II.D.3.a. We also are persuaded preliminarily by Petitioner’s contention that “it would have been obvious to substitute any of Herzog’s meta-data distribution elements with any combination of Spivey’s LDS, MQSD, and/or Live Data Source(s), which are similarly involved in transmitting live event data to users and may be configured in any manner.” Pet. 65 (citing Ex. 1001 ¶ 148; Ex. 1017 ¶ 34). This supports Petitioner’s assertion of expected success in combining Herzog and Spivey based on the simple substitution of known elements. *Id.* at 64–65 (citing Ex. 1001 ¶ 148).

Regarding Patent Owner’s argument that improved latency might cause inoperability, we note that Herzog teaches compensating for different types of data having different latencies. Ex. 1015 ¶ 82. And, even if the resulting combination would have required processing a faster meta-data stream, Petitioner need not show that its combination is the best or preferred combination. *See, e.g., Novartis Pharm. Corp. v. West-Ward Pharm. Int’l Ltd.*, 923 F.3d 1051, 1059 (Fed. Cir. 2019) (“[O]ur case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the

current invention.”); *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014) (holding that it is not necessary to show that a combination is “the best option, only that it be a suitable option.”).

Additionally, the challenged claims do not recite that the first event information must be gated or synchronized with the first live sporting event, so this argument is not commensurate with the scope of the challenged claims.

Petitioner’s contentions and Dr. Wicker’s testimony regarding latency rely on Spivey’s disclosures to support their assertion that Herzog’s system is susceptible to latency issues. Pet. 63; Ex. 1001 ¶ 144 (citing Ex. 1017 ¶¶ 27–28). Spivey describes that “[a]s technology allows users to receive such data away from desktop computers, the demand for live event data *in real time* on mobile devices has increased.” Ex. 1017 ¶ 2 (emphasis added). Spivey also describes that its technology reduces delay “providing *a significant advantage over the conventional practices*.” *Id.* ¶ 28 (emphasis added). At this early juncture, we find that Petitioner’s argument of motivation to achieve reduced latency is supported sufficiently for purposes of institution based on Spivey’s disclosure of user “demand” for “live event data in real time” and that Spivey’s technology would have been understood to provide “*a significant advantage over the conventional practices*.” *Id.* ¶¶ 2, 28 (emphasis added). And, even though Patent Owner and Dr. Rubin argue that Herzog does not have a latency problem (Prelim. Resp. 52 (citing Ex. 2001 § VI.B.1)), we find Petitioner has the better argument based on the preliminary record.

Regarding Petitioner’s proposed combination of Herzog and Ellis, we are persuaded preliminarily that an ordinarily skilled artisan would have

made the combination so “users would enjoy having more content options, e.g., multiple live event streams, chat information, and advertising content.” Pet. 65 (citing Ex. 1001 ¶ 157; Ex. 1016 ¶¶ 39–41, Figs. 1, 2B). Patent Owner’s arguments to the contrary are unavailing because they are based on incorporating technological features of Ellis’s tuning technology. *See* Prelim. Resp. 51 (citing Ex. 2001 § VI.B.2); *see also id.* at 55–56 (citing Ex. 2001 § VI.B.2). Petitioner’s combination does not rely on that technology; it merely incorporates Ellis’s teaching of providing more content options, such as options from multiple broadcasters, into Herzog’s system. *See* Pet. 65; Ex. 1001 ¶ 157. Petitioner is not required to show that all of Ellis’s features can be bodily incorporated in Herzog’s system in order to prove obviousness. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference,” but, “[r]ather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”). Furthermore, Herzog teaches receiving four streams from four different imaging sources 48a–48d (Ex. 1015 ¶ 46), and Petitioner’s proposed modification is merely that those four different streams may be from different broadcasters. *See* Pet. 70.

For reasons similar to those discussed above (*see supra* § II.D.3.a), we are persuaded that the complementary nature of Herzog’s, Ellis’s, and Spivey’s teachings supports an expectation of success in combining these references (*see* Pet. 63–64), and we find unavailing Patent Owner’s arguments to the contrary (*see* Prelim. Resp. 52–56). In particular, Herzog is similar to Ellis and Spivey insofar as Herzog relates to content delivery for

real-time events quickly to multiple users over the internet. *See, e.g.*, Ex. 1015 ¶ 49 (describing publishing “video imagery, related audio and meta-data that are received from the content provider 42 onto the content delivery network 47 for presentation to users/consumers of the content via mobile devices such as device 45”), ¶ 51 (describing that an “Internet server provider (ISP)” may transfer data to local content delivery network 47), Figs. 1, 4, 7.

Patent Owner’s arguments that Petitioner relies on impermissible hindsight bias to “reconstruct the invention” (Prelim. Resp. 56–60) and Dr. Rubin’s related testimony appear to be contradicted by Petitioner’s evidence in the preliminary record. As discussed above, Petitioner’s arguments that a person of ordinary skill in the art would have made its proposed combination are sufficient for purposes of institution.

For these reasons, we are persuaded preliminarily by Petitioner’s rationale for combining Herzog, Ellis, and Spivey.

b. Preamble 19.0

The preamble of claim 19 recites

[a] system for providing a first plurality of copies of a first live stream of digital content relating to a first live sporting event to a first plurality of viewer client devices, and for providing a second plurality of copies of a second live stream of digital content relating to a second live sporting event to a second plurality of viewer client devices.

Ex. 1003, 62:56–62. Petitioner cites Herzog’s teaching of providing “live video and audio data” to user devices over a “communication network.” Pet. 66 (citing Ex. 1015, code (57)). Petitioner also cites Herzog’s example of providing “multiple video/audio streams of race cars and drivers, as they

are imaged at different locations on the race track.” *Id.* at 66–67 (citing Ex. 1015 ¶ 45, Fig. 4). Furthermore, Petitioner cites Ellis’s teaching of “providing multiple live streams of digital content that is of two different live sporting events” simultaneously to “any number of users.” *Id.* at 67–68 (citing Ex. 1016 ¶¶ 62–63, Figs. 2B, 4).

Patent Owner does not dispute Petitioner’s analysis of the preamble at this time. Based on the present record, we are persuaded preliminarily that the combination of Herzog and Ellis teaches the preamble.⁷ In particular, Petitioner shows sufficiently that Herzog teaches a system that provides multiple streams of data for a live sporting event (*see, e.g.*, Ex. 1015, code (57), ¶ 45, Fig. 4), and Ellis teaches providing video streams of more than one event to any number of users (*see, e.g.*, Ex. 1016 ¶¶ 62–63, Fig. 2B, 4).

c. Limitation 19.1

Claim 1 further recites “A) a plurality of media sources to” perform various steps. Ex. 1003, 62:63. Petitioner cites Herzog’s multiple MPEG 4 publishing encoders that can “‘encode[]’ the video and audio data and then the ‘encoded video is then published to the content delivery network 47 (for example) via IP utilizing [] HLS [HTTP Live Streaming].” Pet. 69 (citing Ex. 1015 ¶¶ 48, 49, 55).

⁷ Because Petitioner shows sufficiently for purposes of institution that the combination of Herzog and Ellis teaches the preamble, we need not determine whether the preamble is limiting. *See Realtime Data*, 912 F.3d at 1375.

At this juncture, Patent Owner does not dispute Petitioner’s analysis of this limitation. Based on the present record, Petitioner has shown sufficiently that Herzog’s multiple MPEG 4 publishing encoders for encoding video audio data teaches the recited “media sources.” *See, e.g.*, Ex. 1015 ¶¶ 48, 49, 55.

d. Limitation 19.2

Claim 19 further recites that the plurality of media sources “receive the first live stream of digital content and the second live stream of digital content.” Ex. 1001, 62:64–65. Petitioner contends that Herzog’s MPEG 4 publishing encoders receive the video and audio data from a live event using “communication technologies for communicating multiple video and audio streams.” Pet. 69 (citing Ex. 1015 ¶¶ 46, 49).

At this juncture, Patent Owner does not dispute Petitioner’s analysis. Based on the present record, we are persuaded preliminarily that Herzog teaches this limitation. *See, e.g.*, Ex. 1015 ¶¶ 46, 49

e. Limitations 19.3 and 19.4

Claim 19 further recites that the plurality of media sources provide a first copy of the first plurality of copies to a first viewer client device of the first plurality of viewer client devices via a first Internet communication channel between the plurality of media sources and the first viewer client device of the first plurality of viewer client devices; and provide a first copy of the second plurality of copies to a first viewer client device of the second plurality of viewer client devices via a second Internet communication channel between the plurality of media sources and the first viewer client device of the second plurality of viewer client devices.

Ex. 1003, 62:66–63:10. For the viewer client devices, Petitioner contends that “Herzog discloses providing multiple different users with the option to select any of the available video feeds.” Pet. 70 (citing Ex. 1015 ¶ 70). Specifically, Petitioner posits an example where “Herzog . . . provides at least four different video streams, two or more users would select a first event to stream, and two or more different users would select a second event to stream.” *Id.* (citing Ex. 1001 ¶ 449; Ex. 1015 ¶¶ 46, 70).

Petitioner further contends that an ordinarily skilled artisan “would have understood that each user device receives their own copy of the video stream” in light of Herzog’s teaching of providing a selected video stream to each user individually via HTTP live streaming. Pet. 70 (citing Ex. 1001 ¶ 450; Ex. 1015 ¶ 51). Regarding the recited video internet communication channels, Petitioner cites Herzog’s teaching of sending video via HTTP Live Streaming (HLS), with each user receiving an individual copy from the MPEG 4 publishing encoders over a video internet communication channel that is unique to each user device. *Id.* at 71 (citing Ex. 1001 ¶ 451; Ex. 1015 ¶¶ 2, 51).

At this juncture, Patent Owner does not dispute Petitioner’s analysis. Based on the present record, Petitioner shows sufficiently that Herzog teaches providing multiple different video streams to multiple different users over individual HTTP live streaming channels. *See, e.g.*, Ex. 1015 ¶¶ 2, 15, 46, 51, 70.

f. Limitation 19.5

Claim 19 further recites “B) a control server to periodically retrieve, via the Internet, first event information germane to the first live sporting

event and second event information germane to the second live sporting event.” Ex. 1003, 63:11–14. Petitioner contends that Herzog’s Enhanced Result Protocol (ERP) Server is a generic server that retrieves meta-data from the ERP generator server over the internet in HTTPS format. Pet. 71–72 (citing Ex. 1015 ¶¶ 16, 17, 45, 47, 50, Fig. 4). According to Petitioner, Herzog’s retrieved meta-data (e.g., the “status of each car and driver in the race”) is germane to the live sporting event (e.g., a race). *Id.* at 72 (citing Ex. 1015 ¶ 45).

Based on an analysis similar to that discussed above (*see supra* § II.D.3.e), Petitioner also cites Ellis’s supplemental content source as periodically retrieving information sports scores, wagering data, etc., over the internet. Pet. 73. Petitioner also contends that the retrieved event information is “germane to all (first/second) live sporting events.” *Id.* (citing Ex. 1001 ¶ 453; Ex. 1016 ¶¶ 41, 72, 117).

Petitioner acknowledges that “a periodic time interval is not mentioned in Herzog or Ellis,” but Petitioner contends that an ordinarily skilled artisan “would have understood that any system that provides real-time sports statistics, such as Herzog, would necessarily update the statistics on a periodic basis. Pet. 73 (citing Ex. 1001 ¶ 454). Petitioner explains that, “[t]o reduce latency using an HTTP connection,” an ordinarily skilled artisan “would have known to have Herzog’s ERP server periodically check for the content availability as often as possible.” *Id.* at 73 (citing Ex. 1001 ¶ 724).

Patent Owner does not dispute Petitioner’s analysis at this juncture. We note that Petitioner’s proposed combination does not incorporate Ellis’s supplemental content source and, instead, only incorporates Ellis’s teachings on multiple live events into the Herzog/Spivey combination. *See* Pet. 65–66.

Thus, at this preliminary stage, we are not persuaded by Petitioner’s contentions regarding Ellis’s supplemental content source for teaching limitation 1.5 because, based on the current record, Petitioner has not shown sufficiently how Ellis’s supplemental content source would be part of Petitioner’s proposed combination. Notwithstanding, we are persuaded preliminarily that Herzog’s ERP Server teaches limitation 1.5. *See, e.g.*, Ex. 1001 ¶¶ 454, 724; Ex. 1015 ¶¶ 45, 47, 50, Fig. 4.

g. Limitation 19.6

Claim 19 further recites “(C) at least one socket server communicatively coupled to the control server.” Ex. 1003, 63:15–16. Petitioner notes that Herzog teaches providing live event video and meta-data streams over separate connections, but acknowledges that “Herzog does not specifically disclose some backend server architecture supporting the data distribution.” Pet. 61–62 (citing Ex. 1001 ¶¶ 126, 142–143; Ex. 1015 ¶¶ 12, 48–52, 67, 80–81, Figs. 4, 7).

As such, and based on its reasons for combining Spivey with Herzog (*see supra* § II.E.2.a), Petitioner contends that an ordinarily skilled artisan would have incorporated Spivey’s message queue server device (MQSD) into Herzog’s origin server “to achieve full-duplex communications between a client and a remote host with low latency.” *Id.* at 62–63 (citing Ex. 1001 ¶¶ 80–87, 142–143), 75 (citing Ex. 1001 ¶ 456). Petitioner further contends that an ordinarily skilled artisan would have understood that Herzog’s ERP server (i.e., the recited “control server”) transmits HTTPS information to Spivey’s MQSD (i.e., the recited “socket server”). *Id.* at 75 (citing Ex. 1001 ¶ 457).

At this juncture, Patent Owner does not dispute Petitioner’s analysis.⁸ Petitioner shows sufficiently that Herzog’s ERP server (i.e., the “control server”) transmits data to Herzog’s origin server as modified to incorporate Spivey’s message queue server device (i.e., the “socket server”). *See, e.g.*, Ex. 1001 ¶¶ 456–457; Ex. 1015 ¶¶ 50–51, 83, Fig. 4. For the same reasons mentioned above, we also are persuaded preliminarily that an ordinarily skilled artisan would have modified Herzog’s origin server to include Spivey’s message queue server device. *See supra* § II.E.1.a; Ex. 1001 ¶ 456.

h. Limitation 19.7

Claim 19 further recites that that the socket server “receive[s] from the control server at least some of the first event information and at least some of the second event information.” Ex. 1003, 63:17–19. Petitioner notes that Herzog’s Enhanced Result Protocol (ERP) Server “receives the meta-data from ERP generator server 49 in HTTPS communication format” and “acts as an intermediary between the ERP generator server and the origin server.” Pet. 75 (quoting Ex. 1015 ¶ 50). According to Petitioner, “[i]ncorporating Spivey’s MQSD into Herzog’s origin server would thus allow the MQSD (socket server) to receive from the ERP Server (control server) the meta-data provided (first/second event information).” *Id.* at 76 (citing Ex. 1001 ¶ 459).

⁸ We note that Patent Owner disputes Petitioner’s analysis of a related claim term, i.e., “event socket,” for limitations 19.8 and 19.9. We discuss those arguments above and below. *See supra* § II.D.3.i; *infra* § II.E.1.i.

At this juncture, Patent Owner does not dispute Petitioner’s analysis.⁹ Based on the present record, Petitioner shows sufficiently that Herzog’s origin server as modified to incorporate Spivey’s message queue server device (i.e., the “socket server”) receives meta-data from Herzog’s ERP server (i.e., the “control server”). *See, e.g.*, Ex. 1001 ¶ 459; Ex. 1015 ¶¶ 50–51, Fig. 4.

i. Limitation 19.8 and 19.9

Claim 19 further recites that the socket server

transmit[s] the at least some of the first event information to the first viewer client device of the first plurality of viewer client devices via a third Internet communication channel between at least one first event socket of the at least one socket server and the first viewer client device of the first plurality of viewer devices; and

transmit[s] the at least some of the second event information to the first viewer client device of the second plurality of viewer client devices via a fourth Internet communication channel between at least one second event socket of the at least one socket server and the first viewer client device of the second plurality of viewer devices.

Ex. 1003, 63:20–33. Petitioner again cites Spivey’s topic queues for teaching the recited “event socket.” Pet. 76–77 (citing Ex. 1001 ¶¶ 461–463, 471–472); *see also supra* § II.D.3.h. For transmitting the first and second event information to the first viewer client device of the first and second plurality of viewer client devices, Petitioner again cites Herzog’s teaching of multiple different users having the option to receive any available video

⁹ We note that Patent Owner disputes Petitioner’s analysis of a related claim term, i.e., “event socket,” for limitations 19.8 and 19.9. We discuss those arguments above and below. *See supra* § II.D.3.i; *infra* § II.E.1.i.

feed. Pet. 77; *see also supra* § II.E.2.e. Petitioner further notes that Herzog’s origin server can transmit meta-data such as car position to content delivery network 47, and the user receives such meta-data “in an HTTPS communications protocol.” Pet. 77 (citing Ex. 1001 ¶ 464; Ex. 1015 ¶¶ 45, 51). Petitioner additionally cites Spivey’s teaching that the MQSD “may push data from topic queues . . . to the subscribers of the topics corresponding to those topic queues.” *Id.* (citing Ex. 1001 ¶ 464; Ex. 1017 ¶ 46).

For transmitting via third and fourth internet communication channels between the first and second event sockets and the first viewer client device of the first and second plurality of viewer devices, Petitioner cites Herzog’s teaching of “providing event information over a separate communication path than the video signal where there is ‘a unique video and metadata source that do not follow the same path of transmission.’” Pet. 77–78 (citing Ex. 1015 ¶¶ 47–51, 83, Figs. 1, 5, 4, 6). Petitioner additionally cites the same teachings discussed regarding the combination of Spivey and Ellis teaching the distribution of event information from a socket to a user device over an internet connection using a URL and text string. *Id.* at 78 (citing Ex. 1001 ¶ 467); *see supra* § II.D.3.i.

Patent Owner relies on the same arguments discussed above with respect to the Ellis–Spivey ground. Prelim. Resp. 60; *see supra* § II.D.3.i. For the same reasons discussed above, Petitioner has shown sufficiently that Spivey teaches the recited “event socket.” *See supra* § II.D.3.i. Petitioner also has shown sufficiently that Herzog teaches providing meta-data (i.e., “event information”) and video to clients via separate communication paths. *See, e.g.,* Ex. 1015 ¶¶ 47–51, 83, Figs. 1, 5, 4, 6.

j. Secondary Considerations of Nonobviousness

Our analysis of secondary considerations of nonobviousness from above applies equally to this ground. *See supra* § II.D.3.j.

k. Conclusion Regarding Claim 19

Petitioner has shown sufficiently at this juncture that the combination of Herzog, Ellis, and Spivey teaches all limitations of claim 19. Petitioner also has put forth a sufficient rationale for combining Ellis and Spivey with Herzog with a reasonable expectation of success. We also have considered Patent Owner's evidence of secondary considerations of nonobviousness, and we accord it little or no weight at this juncture. Based on the present record, we determine that Petitioner has established a reasonable likelihood that it would prevail in showing that the invention of claim 19 as a whole would have been obvious over the combination of Herzog, Ellis, and Spivey.

3. *Claims 20–22*

We have reviewed Petitioner's analysis for claims 20–22, which depend directly or indirectly from claim 19. Pet. 78–82. Patent Owner relies on the same arguments discussed above. We are persuaded preliminarily by Petitioner's analysis for claims 20–22. Based on the present record, Petitioner has established a reasonable likelihood that it would prevail in showing that the inventions of claims 20–22 as a whole would have been obvious over the combination of Herzog, Ellis, and Spivey.

4. *Claims 23–25*

Petitioner's analysis for independent claim 23 incorporates some of the same analysis from claim 19. Pet. 82–83. Further, we have reviewed

Petitioner's analysis for claims 24 and 25, which each depend from claim 23. Pet. 83–85. Patent Owner relies on the same arguments discussed above. We are persuaded preliminarily by Petitioner's analysis for claims 23–25. Based on the present record, Petitioner has established a reasonable likelihood that it would prevail in showing that the inventions of claims 23–25 as a whole would have been obvious over the combination of Herzog, Ellis, and Spivey.

5. *Claims 27–30*

Claims 27–30 all recite means-plus-function limitations. Ex. 1003, 66:10–46. For purposes of these comments, we apply Petitioner's proposed constructions of the means-plus-function limitations except for the recitation in the preamble of claim 30, which we treat as non-limiting. *See* Pet. 7–9; *supra* § II.C.

Petitioner's analysis for independent claim 27 incorporates some of the same analysis from claim 19. Pet. 55–57. Patent Owner relies on the same arguments discussed above. We are persuaded preliminarily by Petitioner's analysis for claim 27.

Claim 28 depends from claim 27 and recites “means for transmitting and receiving first chat information regarding the first live sporting event via at least one first chat/system event Internet communication channel that is different from the first video communication channel and the first event information communication channel.” Ex. 1003, 66:22–27. As discussed above, Petitioner's proposed corresponding structure for this limitation performs an algorithm where “chat messages/system event information is shared in a synchronized manner by the broadcaster of the live stream and

corresponding viewers of copies of the live stream.” Ex. 1003, 20:27–35; *see also* Pet. 8. Yet Petitioner’s contentions for this limitation do not appear to address how the combination of Herzog, Spivey, and Ellis teaches synchronized chat. *See* Pet. 80–81, 87. Thus, based on the present record, Petitioner has not shown sufficiently that the combination of Herzog, Spivey, and Ellis teaches the recited “means for transmitting and receiving first chat information” of claim 28.

We have reviewed Petitioner’s analysis for claims 29 and 30, which each depend from claim 27. Pet. 87–88. We note that, in contrast to the Ellis–Spivey ground discussed above, Petitioner relies on Herzog for teaching certain limitations in claim 30. *See id.* Patent Owner relies on the same arguments discussed above. We are persuaded preliminarily by Petitioner’s analysis for claims 29 and 30.

For these reasons, and based on the present record, Petitioner has established a reasonable likelihood that it would prevail in showing that the inventions of claims 27, 29, and 30 as a whole would have been obvious over the combination of Herzog, Ellis, and Spivey. Petitioner has not established a reasonable likelihood that it would prevail in showing that the invention of claim 28 as a whole would have been obvious over the combination of Herzog, Ellis, and Spivey. Notwithstanding, we will be instituting on all grounds and all claims raised in the Petition. *See* 37 C.F.R. § 42.108(a).

III. CONCLUSION

After considering the evidence and arguments presented in the current record, we determine that Petitioner has demonstrated a reasonable

likelihood that it would prevail with respect to at least one of the claims challenged in the Petition. Accordingly, we institute an *inter partes* review on all of the challenged claims and all grounds presented in the Petition. At this stage of the proceeding, we have not made a final determination as to the patentability of the challenged claims.

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314, *inter partes* review is instituted as to claims 19–25 and 27–30 of the '687 patent with respect to all grounds of unpatentability presented in the Petition; and

FURTHER ORDERED that *inter partes* review is commenced on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

IPR2024-01307
Patent 10,805,687 B2

For PETITIONER:

W. Baker
Michael Dinnella
KIRKLAND & ELLIS LLP
todd.baker@kirkland.com
mtd5145@gmail.com

For PATENT OWNER:

Brian Eutermoser
Mikaela Stone
KING & SPALDING LLP
beutermoser@kslaw.com
mikaela.stone@kslaw.com