

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.

IPR2024-01309

U.S. Patent No. 10,425,697

PATENT OWNER'S RESPONSE TO PETITION

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U.S. Patent & Trademark Office
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TABLE OF CONTENTS

I.	INTRODUCTION	1
A.	Topic queues are not sockets under Petitioner’s own definition	2
B.	Petitioner’s Ellis/Spivey combination fails to relay data to Ellis’s User Equipment; it’s fundamentally inoperable and not fit for purpose.....	4
C.	Petitioner’s Herzog/Spivey combination would not result in reduced latency and would not be attempted.....	6
II.	THE ’697 PATENT	8
A.	Inadequacy of the Prior Art.....	8
B.	Innovations of the ’697 Patent	10
C.	Claim Construction	12
1.	“means for transmitting...”	12
D.	Level of Ordinary Skill in the Art.....	14
III.	PRIOR ART OVERVIEW	14
A.	Ellis	14
B.	Spivey	17
C.	Herzog.....	20
IV.	THE CHALLENGED CLAIMS ARE PATENTABLE	25
A.	Ground 1: Claims 19-25 and 27-30 are Patentable over Ellis in View of Spivey	26
1.	Independent claims 19, 23, and 27 are patentable	26
2.	Dependent Claims 20-22, 24-25 and 28-30 are patentable.....	51
B.	Ground 2: Claims 19-25 and 27-30 are Patentable over Herzog in view Spivey and Ellis.....	54
1.	Independent claims 19, 23, and 27 are patentable	54
2.	Dependent Claims 20-22, 24-25 and 28-30 are patentable.....	64

V.	OBJECTIVE INDICIA SHOW THAT THE CLAIMS WOULD NOT HAVE BEEN OBVIOUS	65
A.	The Claimed Invention Satisfied a Long-Felt Need.	66
B.	The Claimed Invention Received Industry Praise	68
C.	The Claimed Invention Was Praised and Copied By Petitioner	69
D.	Patent Owner’s Patented Product Enjoys Substantial Commercial Success.	71
VI.	CONCLUSION.....	75

TABLE OF AUTHORITIES

Cases:

<i>Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.</i> , 344 F.3d 1186 (Fed. Cir. 2003).....	70
<i>Belden Inc. v. Berk-Tek LLC</i> , 805 F.3d 1064 (Fed. Cir. 2015).....	47
<i>Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.</i> , 800 F.3d 1375 (Fed. Cir. 2015).....	25
<i>Harmonic Inc. v. Avid Tech., Inc.</i> , 815 F.3d 1356 (Fed. Cir. 2016).....	25
<i>In re Huang</i> , 100 F.3d 135 (Fed. Cir. 1996).....	65
<i>In re Merck & Co.</i> , 800 F.2d 1091 (Fed. Cir. 1986).....	49
<i>Interconnect Planning Corp. v. Feil</i> , 774 F.2d 1132 (Fed. Cir. 1985).....	50
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	44, 49
<i>Lectrosonics, Inc. v. Zaxcom, Inc.</i> , IPR2018-01129, Paper 33 (PTAB Jan. 24, 2020)	65
<i>Leo Pharm. Products, Ltd. v. Rea</i> , 726 F.3d 1346 (Fed. Cir. 2013).....	65
<i>Metalcraft of Mayville, Inc. v. The Toro Co.</i> , 848 F.3d 1358 (Fed. Cir. 2017).....	50
<i>Newell Cos., Inc. v. Kenney Mfg. Co.</i> , 864 F.2d 757 (Fed. Cir. 1988).....	66

<i>Ormco Corp. v. Align Technology, Inc.</i> , 463 F.3d 1299 (Fed. Cir. 2006).....	71
<i>Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.</i> , 711 F.3d 1348 (Fed. Cir. 2013).....	71
<i>Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.</i> , 699 F.3d 1340 (Fed. Cir. 2012).....	65
<i>Twinstrand Biosciences, Inc. v. Guardant Health, Inc.</i> , IPR2022-01115, Paper 14 (PTAB Dec. 30, 2022)	52, 64
<i>Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC</i> , 683 F.3d 1356 (Fed. Cir. 2012).....	71
<i>Wyers v. Master Lock Co.</i> , 616 F.3d 1231 (Fed. Cir. 2010)	70
Other Authority:	
Ashley A. Bolt, <i>Combating Hindsight Reconstruction in Patent Prosecution</i> , 64 EMORY L. J. 1137 (2015).....	44

EXHIBIT LIST

Exhibit	Description
EX-2001	Declaration of Aviel Rubin, Ph.D.
EX-2002	<i>Curriculum vitae</i> of Aviel Rubin, Ph.D.
EX-2003	Joint Claim Construction Statement, Dkt. 69
EX-2004	Declaration of Dr. Stephen Wicker, September 13, 2024
EX-2005	Exhibit Not Used
EX-2006	Yahoo Finance Tanner Simkins, April 20, 2017
EX-2007	NBA.com, Steve Ashburner April 27, 2017 Article
EX-2008	Sportstechie, Robert Roble, April 22, 2017
EX-2009	Sports Tech Tokyo Award; 2019 Yahoo! Sports Tech Awards; Sports Business Awards
EX-2010	Various Media Reports on the Patented Invention
EX-2011	CNBC, December 20, 2018
EX-2012	https://sportscastr.com/about
EX-2013	https://pandainteractive.com/patents
EX-2014	https://sportscastr.com
EX-2015	https://studiopanda.live/
EX-2016	Genius Sports 2-24-18 Email
EX-2017	Genius Sports 5-7-18 Email
EX-2018	'697 Patent Genius Sports Infringement Claim Chart
EX-2019	https://www.opensourceforu.com/2015/03/a-guide-to-using-raw-sockets
EX-2020	https://learn.microsoft.com/en-us/windows/win32/winsock/tcp-ip-raw-sockets-2
EX-2021	Oracle documentation in 2011: Anatomy of the Client/Server Model. https://docs.oracle.com/cd/E13203_01/tuxedo/tux80/atmi/intbas3.htm
EX-2022	Peng, Gang. "CDN: Content distribution network." arXiv preprint cs/0411069 (2004) https://arxiv.org/pdf/cs/0411069
EX-2023	The History of Streaming Media. https://boyetblog.s3.amazonaws.com/PCPlus/324.Streaming.pdf
EX-2024	RFC 2326: Real Time Streaming Protocol (RTSP) https://www.ietf.org/rfc/rfc2326.txt
EX-2025	Adobe's Real Time Messaging Protocol https://rtmp.veriskope.com/pdf/rtmp_specification_1.0.pdf
EX-2026	WebRTC 1.0: Real-time Communication Between Browsers

Exhibit	Description
	https://www.w3.org/TR/2011/WD-webrtc-20111027/
EX-2027	HTTP Live Streaming: draft-pantos-http-live-streaming-01 https://datatracker.ietf.org/doc/html/draft-pantos-http-live-streaming-01
EX-2028	Microsoft To Add Smooth Streaming in IIS7 https://virtualizationreview.com/articles/2008/11/04/microsoft-to-add-smooth-streaming-in-iis7.aspx
EX-2029	HTTP Dynamic Streaming. (Archived May 14, 2010) https://web.archive.org/web/20100514170442/http://www.adobe.com/products/httpdynamicstreaming/
EX-2030	MPEG ratifies its draft standard for DASH. (Archived December 14, 2011) https://web.archive.org/web/20111214104626/http://mpeg.chiariglione.org/meetings/geneva11-1/geneva_press.htm
EX-2031	Mogulus Rebrands With A Killer Domain: Livestream.com https://techcrunch.com/2009/05/18/mogulus-gets-a-killer-domain-for-rebranding-livestreamcom/
EX-2032	How to watch Obama's inauguration (and the parties) online https://www.cnet.com/tech/tech-industry/how-to-watch-obamas-inauguration-and-the-parties-online/
EX-2033	Twitch is 4 th in Peak US Internet Traffic https://blog.twitch.tv/en/2014/02/05/twitch-is-4th-in-peak-us-internet-traffic-90b1295af358/
EX-2034	Twitch Engineering: An Introduction and Overview https://blog.twitch.tv/en/2015/12/18/twitch-engineering-an-introduction-and-overview-a23917b71a25/
EX-2035	<i>Proceedings of the 25th ACM workshop on network and operating systems support for digital audio and video</i> , pp. 55-60, 2015 https://arxiv.org/pdf/1502.04666
EX-2036	Twitch Engineering: An Introduction and Overview https://blog.twitch.tv/en/2015/12/18/twitch-engineering-an-introduction-and-overview-a23917b71a25/
EX-2037	Institution Decisions for IPR2024-1305, IPR2024-1307, IPR2024-1308, IPR2024-1309, IPR2024-13010, IPR2024-1311
EX-2038	Supplemental Declaration of Aviel Rubin, Ph.D.
EX-2039	Transcript of Deposition of Dr. Stephen Wicker, May 7, 2025

SportsCastr Inc. (d/b/a PANDA Interactive) (“Patent Owner” or “PANDA”) submits this Response to the Petition of Genius Sports, Ltd. (“Petitioner” or “Genius Sports”) seeking inter partes review of U.S. Patent No. 10,425,697 (“the ’697 patent”).

I. INTRODUCTION

The ’697 patent discloses and claims a novel one-to-many socket architecture that supplies multiple client devices real-time, actionable event information, which may be paired with a digital content stream, e.g., a video stream. (EX-1006, 9:16-58; EX-2001, ¶¶78-84.) This novel architecture reduces latency among client devices receiving these updates, which plagued prior art systems.

Patent Owner respectfully submits that the challenged claims should be found patentable for at least three reasons:

1. Petitioner does not demonstrate that the prior art’s “topic queues” correspond to the claimed “event socket.”
2. Petitioner’s Ellis/Spivey combination is fundamentally inoperable because it includes no server component that functions to relay data to Ellis’s “user equipment”.
3. Petitioner’s Herzog/Spivey combination would not result in reduced latency and would not be attempted.

A. Topic queues are not sockets under Petitioner’s own definition

First, in its institution decision, the Board respectfully overlooked key differentiating features of the claimed socket architecture over prior art reference Spivey: (i) Spivey’s “topic queues” do not disclose or suggest an “event socket” because those topic queues are not “uniquely addressable communication endpoints;” and (ii) Spivey does not disclose or suggest that its Message Queue Servers (“MQS”)/topic queues are capable of handling communication to individual client devices. Either one of the above findings is sufficient to find the challenged claims patentable.

According to Petitioner’s expert, a “first/second event socket . . . is simply a socket” and a “socket” is a “uniquely addressable communication endpoint.” (EX-1001, ¶595; EX-2039, 63:23-64:2.) Spivey’s topic queues are neither “uniquely addressable” nor “communication endpoints.” (EX-2001, ¶240.)

Yet, in its institution decision, the Board did not credit Patent Owner’s expert testimony, of Dr. Rubin, which established that Spivey’s topic queues are not uniquely addressable communication endpoints, because he had not “address[ed] sufficiently Spivey’s teachings as a whole.” (EX-2037, 37, 98, 171, 236, 298, 355.) But Dr. Rubin did in fact explain that a POSITA would not consider Spivey’s message queues to be “uniquely addressable communication endpoints” because they lack an address through which they can communicate. Dr. Rubin also explained that Spivey describes only its LDAS as being uniquely addressable.

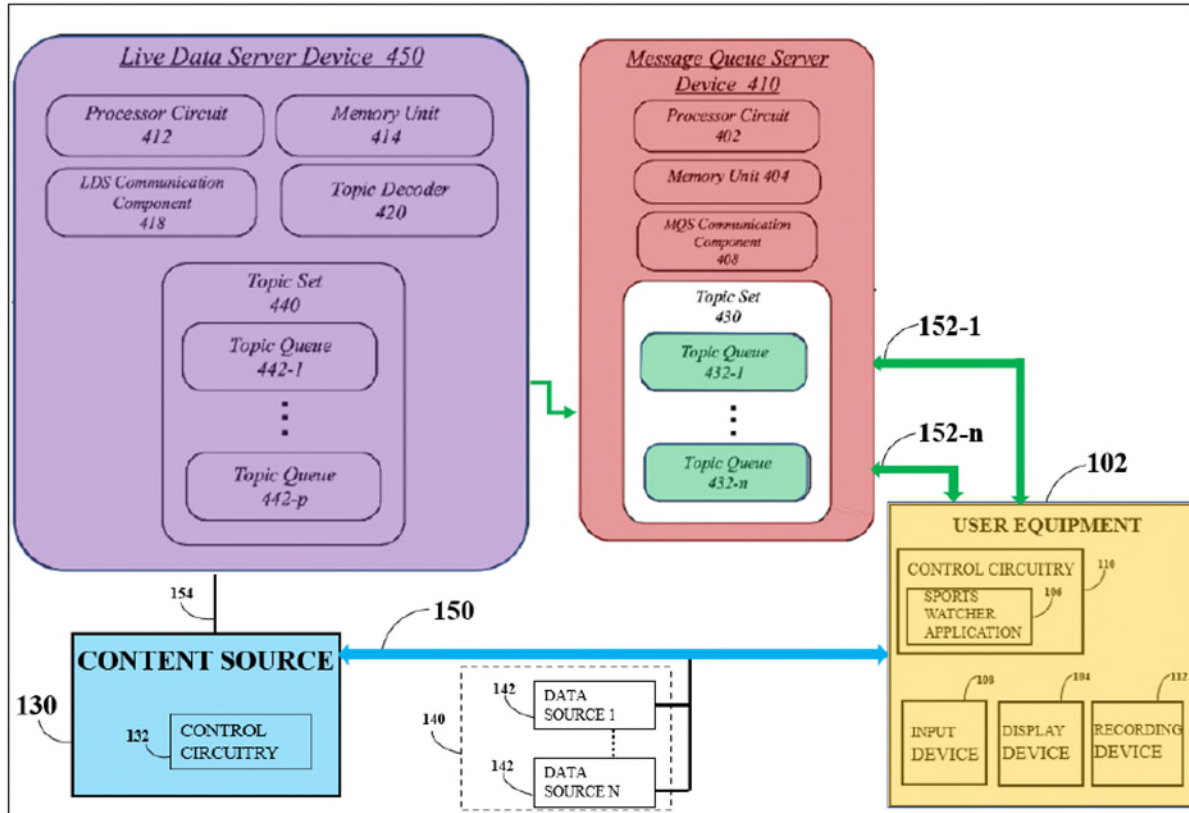
In response, the Board found Spivey's disclosure that an "address may resemble a uniform resource locator (URL)" and that a user interface 900 "allow[s] an operator 108 of a client device to view and select...topics available from a message queue server" supports a finding that Dr. Rubin's testimony "is limited to addressing live data access server 130." (EX-2037, 37, 98, 171, 236, 298, 355.)

But Spivey's user interfaces 800, 900, 1000 (FIGS. 8-10) ***all pertain to accessing the LDAS*** via a client mobile application. (EX-2038, ¶¶25-27; EX-1017, ¶¶81-88.) Spivey's MQS's immediately push data to the LDAS, and individual client devices subscribe to the LDAS to receive such data. Spivey's user interfaces merely depict graphical displays viewable by individual clients for accessing data via the LDAS. While the LDAS provides a communication endpoint for individual client devices, Spivey does not describe, nor would a POSITA understand, Spivey's MQS's and associated topic queues to be uniquely addressable communication endpoints. Dr. Rubin further elaborated on these points in his declaration submitted with the Patent Owner Preliminary Response (EX-2001) and Supplemental Declaration submitted herewith. In view of this clarification, Petitioner cannot prove invalidity of any challenged claim.

B. Petitioner’s Ellis/Spivey combination fails to relay data to Ellis’s User Equipment; it’s fundamentally inoperable and not fit for purpose

Second, in its institution decision, the Board did not recognize the fundamental inoperability of Petitioner’s Ellis/Spivey combination. Petitioner’s entire argument rests on a fabricated diagram that lacks any component capable of data transmission between the Message Queue Server Device or “MQSD” (from Spivey) and the user equipment (from Ellis). (Petition, 19-24.) Accordingly, a POSITA would not understand Petitioner’s creation to cause the flow of any data to the user equipment, and thus would see it as inoperable, and not worthy of attempting.

Petitioner’s patchwork of Ellis’s and Spivey’s architecture (shown below) does not include any component described in the prior art as being capable of transmitting data to the user equipment.



(Petition, 21.)

Despite Petitioner’s attempt to suggest that Spivey’s “topic queues” transmit data (Petition, 39-43), according to Spivey, the only component of the MQSD capable of transmitting data is the “MQS Communication Component 408.” (EX-1017, ¶¶53-57.) The MQS Communication Component 408 (which is analogous to the MQS Communication Component 308) functions to “push the data payload from the topic queue to *a live data access server* that has subscribed to the topic of the topic queue.” (EX, 1017, ¶49 (emphasis added).) But Petitioner’s diagram leaves out the live data access server or “LDAS” entirely. It is only through Spivey’s LDAS (which includes the necessary components—“subscription component 540” and

“interface component 530”—to handle communication to individual clients) that clients can access data from the MQSD. (EX-2038, ¶12.) Absent the LDAS, and its subscription component or interface component, Spivey’s architecture will not operate to deliver data to the user equipment shown on Petitioner’s make-believe diagram. Spivey’s teachings, *when considered as a whole*, require the LDAS; Petitioner’s discarding of the LDAS disrupts and ruins the very message flow Spivey teaches.

Petitioner’s illustration of “communication channels” 152-1, 152-n does not remedy the lack of any component in its diagram for communicating with Ellis’s user equipment. The concept of communication channels 152-1, 152-n are entirely of Petitioner’s and its expert’s own making. Neither Ellis nor Spivey disclose such multiple communication channels. And despite Petitioner’s representation of a bi-directional arrow shown adjacent the topic queues, the topic queues (as demonstrated herein) do not function as a “uniquely addressable communication endpoint” and are not capable of handling communication to multiple end client or user equipment devices.

C. Petitioner’s Herzog/Spivey combination would not result in reduced latency and would not be attempted

Third, in its institution decision, the Board respectfully overlooked Herzog’s requirement for a robust latency period during which Herzog performs its timestamp synchronization techniques. (EX-2005, 46-47.) Herzog does not have a latency

problem—latency is a feature, not a bug. Herzog uses, and in fact relies upon, the disparate latency periods of a video/audio stream and meta-data stream to synchronize different delays between each stream. Attempting to reduce, modify or otherwise tamper with such disparate latencies period would destroy a fundamental principle of operation of Herzog, and would not be attempted, because doing so would render the reference inoperable for its stated aim of timestamp synchronization during such disparate latency periods.

Moreover, the Board did not address the fact that even if one could somehow reduce the latency of the Herzog’s meta-data stream using Spivey (which could not be done), there is no basis presented by Petitioner for reducing the other, larger systemic sources of latency present in Herzog’s audio/video. Petitioner does not even address the latency caused by Herzog’s audio/video stream, nor does Petitioner acknowledge that any reduction in the latency of telemetry data would not permit the faster receipt of audio/video data by the client. This, despite Petitioner’s insistence that “[t]he combined system would maintain Herzog’s video content delivery system.” (Petition, 63.) Simply put, even if Spivey could somehow be used to reduce the Herzog meta-data delay to zero (a physical impossibility), this would still do nothing to reduce the Herzog audio/video latency that clocks in at up to 63 seconds. (EX-1015, FIG. 6.) It is therefore mathematically impossible to achieve a “two orders of magnitude” reduction in Herzog’s delay periods (EX-1017, ¶96),

when Spivey does not address (nor does Petitioner even purport to address) the audio/video latency period. Finding to appreciable benefit to making Petitioner's proposed combination, a POSITA would surely have not attempted it.

* * *

For these reasons, and those discussed below, the challenged claims should be found be patentable.

II. THE '697 PATENT

A. Inadequacy of the Prior Art

Synchronized data and video streams form cornerstone technologies that support the exploding online broadcasting market. Interactive features alongside germane video content may allow, and even encourage, viewers to engage and interact—all without the viewer leaving an immersive viewing experience. (EX-2001, §§III, IV.)

However, despite years and countless investments in streaming technology, conventional systems continue to suffer from significant drawbacks that have hindered product offerings. (EX-1006, 2:22-64; EX-2001, §III.C.) “One such technological problem relates to viewer ‘latency,’ i.e., the delay between a first user generating a live video stream for transmission via the Internet and a second user receiving a copy of the live video stream via the Internet for viewing.” (EX-1006, 2:27-31; EX-2001, §III.B.2.) While any video streaming technology may seek to reduce latency, the inventors of the '697 patent sought to address specific problems

related to latency. (EX-1006, 24:61-25:33.) For example, conventional techniques made it challenging to provide “relatively low latency copies of live video streams with relatively high quality (e.g., high definition HD and high bit rate).” (EX-1006, 2:34-40; EX-2001, §III.C.) The inventors also addressed synchronizing high quality (“e.g., high definition HD and high bit rate, such as 2 to 5 megabits per second”) copies of a live video stream amongst multiple viewers—particularly a large number of viewers—while ***maintaining low latency delivery***, and also “allowing for different classes or types of viewers to flexibly access copies...via different live streaming formats.” (EX-1006, 2:39-47.)

“Particularly in the context of a ‘second screen’ experience relating to a live event”—as is common among sports viewers and sports betting fans—any “discernible delay between the observation of the live event itself [e.g., a sport] and a given broadcaster’s video-based commentary would significantly undermine viewer experience.” (EX-1006, 4:30-34.) For example, any noticeable offset between the video signal and contextually matched information (e.g., information or commentary that may be used for betting purposes) may confuse the viewer and detract from the ability to place wagers due to the problem of out-of-date, stale, or unsynchronized data served to the viewer. (EX-2001, ¶¶73-76, 313-315.) Conventional approaches also struggle to synchronize the broadcasting of contextual-matched event information and video signals to multiple viewers because

the “offset” between the video signal and matched information may become more pronounced as additional viewers, each having potentially differing bandwidths and connections speeds, join the broadcast. (EX-2001, ¶313.)

Accordingly, there was a need for improved systems and techniques to synchronize contextually matched information with delivered video content.

B. Innovations of the ’697 Patent

The ’697 patent discloses systems and processes related to digital content, such as video, with contextual-matched event information. (EX-1006, 4:41-62, 9:16-58; EX-2001, ¶77.) Instead of contending with a viewer-noticeable offset between a delivered digital content stream and associated information, the claimed inventions implement a novel, technologically improved, one-to-many socket architecture. (EX-1006, 19:64-20:11, 21:37-52, 22:7-39; EX-2001, ¶¶78-79.) This socket architecture allows multiple client devices to establish an event information channel with an “event socket,” which may supply real-time, actionable event information to each client device that is contextually matched with a delivered digital content stream, including, as applicable, the delivered video stream. (EX-1006, 21:37-52, 22:7-39; EX-2001, ¶77.) The ’697 patent discloses and claims transmitting such event information to the client device via an event information Internet communication channel. (EX-1006, 9:16-58; EX-2001, ¶¶84, 85.)

Among the innovations of the ’697 patent is a novel architecture with a

dedicated channel to transmit event information, separate from a communication channel for content streaming, to facilitate the pairing of real-time, actionable information with related digital content. (EX-1006, 21:37-52, 27:5-27; EX-2001, ¶86.) By transmitting signals (including those for video delivery) to the viewer device separate from event information, the '697 patent facilitates the inclusion of real-time, contextually matched data alongside the digital content stream. (EX-1006, 9:16-58, 21:37-52, 27:5-27; EX-2001, ¶91.) For example, all event viewers (regardless of the content stream they receive) may receive synchronized information from the same event socket dedicated to that event. (EX-1006, 9:16-58, 26:50-27:4, FIG. 2; EX-2001, ¶¶82-83.) All live streams, across multiple viewer client devices, may therefore similarly receive synchronized event information, received in real-time via the “event information Internet communications channel”. (EX-1006, 21:65-22:6, 26:50-27:4; EX-2001, ¶¶80-81.)

This represents a significant improvement over the prior art not found in the references cited by Petitioner. (EX-2001, ¶91.) The '697 patent solves the technical challenge of providing the same event information in a synchronized manner to all viewers of such broadcast (e.g., via the socket architecture and paired video stream). (EX-1006, 24:61-25:33, 27:5-27.) Because all viewers of the broadcast may receive the same synchronized information via the same event socket, each viewer client device may be capable of receiving the same information, at generally the same time,

in real-time, regardless of transmission protocol. (EX-1006, 26:50-27:27; EX-2001, ¶89.)

The claimed inventions facilitate enhanced online sports offerings because each viewer may interact with (and, more generally, make decisions based on) the same information as other viewers, all while watching the same digital content. (EX-1006, 26:50-27:27; EX-2001, ¶90.) Using this novel socket architecture and paired content stream enables the claimed invention to leverage real-time communication protocols in a distributed network to deliver high-quality, low-latency copies of certain content streams to multiple viewers, each of whom is receiving synchronized event information. (EX-1006, 26:50-27:27; EX-2001, ¶¶77, 81, 91.)

C. Claim Construction

Petitioner takes conflicting claim construction positions in two proceedings. Here, Petitioner contends the Board need not construe any claim terms aside from the means-plus-function limitations. (Petition, 6-8.) But, in co-pending district court litigation, Petitioner has proposed construction of nine claim terms. (EX-2003.)

1. “means for transmitting...”

Petitioner construed several means-plus-function claim limitations in its Petition. (Petition, 7-8.) For purposes of this response only, only the construction of claim limitation 27.3 (Petition, 8) is relevant. Petitioner proposes the following construction:

Claim 27.3	Petitioner's Proposed Construction	
	Structure	Function
“means for transmitting the first score 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.”	Socket Server performing the algorithm disclosed in 9:46-58 and Figure 2 of the '697 patent.	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.

Patent Owner agrees with Petitioner's construction; however, more specifically, a POSITA would understand the “means for transmitting” to be a socket server transmitting through an event socket that implements the algorithms described in Figures 2, 3, 21A-21E and accompanying disclosures, including 5:29-44, 9:16-10:43, 19:64-20:61, 21:37-22:67, 23:20-45, 26:50-27:27, 29:25-43, 46:61-47:11, 51:27-49, and 53:21-37 of the '697 patent. (EX-2001, §IV.B.1.)

As indicated by the very passage that Petitioner cites in its claim construction proposal, the '697 patent discloses a system having “at least one socket server (600)...to: receive from the control server at least the first score information; and transmit the first score information (504A) to at least the first viewer client

device...via a first event information Internet communication channel (206A) between ***at least one first event socket*** (602A) of the at least one socket server and the first viewer client device.” (EX-1006, 9:46-55 (emphasis added), FIG. 2.) The ’697 patent discloses a variety of algorithms that may be implemented by a socket server to perform the recited function with the consistent understanding that the socket server is transmitting information, e.g., score information, via an event information channel and, therefore, through an event socket. (EX-2001, §IV.B.1.)

Accordingly, a POSITA would understand “means for transmitting” to be a socket server transmitting event information through an event socket.

D. Level of Ordinary Skill in the Art

A POSITA would have 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. (EX-2001, §IV.C, ¶103.)

III. PRIOR ART OVERVIEW

A. Ellis

Ellis recognized that media guidance applications (e.g., television program guides) were typically generalized applications that failed to leverage the increased capabilities of television equipment, such as having multiple tuners. (EX-1016, ¶¶3-7; EX-2001, §V.A.) Specifically, television viewers were “unable to efficiently switch” between programs of interest. (EX-1016, ¶7; EX-2001, ¶¶107-108.)

Accordingly, Ellis discloses systems and methods directed to an “intelligent tuning module” that facilitates a user (e.g., of a television) rapidly switching between programs. (EX-1016, Abstract; EX-2001, ¶¶109-110.) For example, using the system Ellis describes, a viewer may tune into a first television program while concurrently tuning into a second television program. (EX-1016, ¶¶9-10, 16, 57; FIG. 2A.) Because the television is tuned to both (or more) programs simultaneously, the user may switch between the sporting events quickly. (EX-1016, ¶¶5, 137, 176, 178.)

For example, the user’s equipment may include control circuitry, having multiple “tuners” (e.g., Tuners 202, 204, 206, 208)—the first being tuned to a primary event and a second tuned to a second event. (EX-1016, ¶¶57-59; FIG. 2A; EX-2001, ¶¶113-116.) The systems and methods described in Ellis allow for ranking and prioritization of content streamed into the tuners. (EX-1016, ¶¶64, 73, 164; EX-2001, ¶¶113-116.)

Ellis further describes a graphical user interface (e.g., “display screen 300”) to facilitate switching from the primary sporting event to the second sporting event, as shown in Ellis FIG. 3 (below). (EX-1016, ¶¶68, 69; EX-2001, ¶¶117-120.) For example, an interactive scoreboard 302 may be overlaid in a main window. The interactive scoreboard may include scoreboard entries 304, 306 with information indicative of the currently tuned events. (EX-1016, ¶¶68.) In some cases, the viewer

may select scoreboard entries to facilitate viewing the tuned-in game on the device, for example, by indicating with a television icon when that game is available for viewing. (EX-1016, ¶73; FIG. 4.)

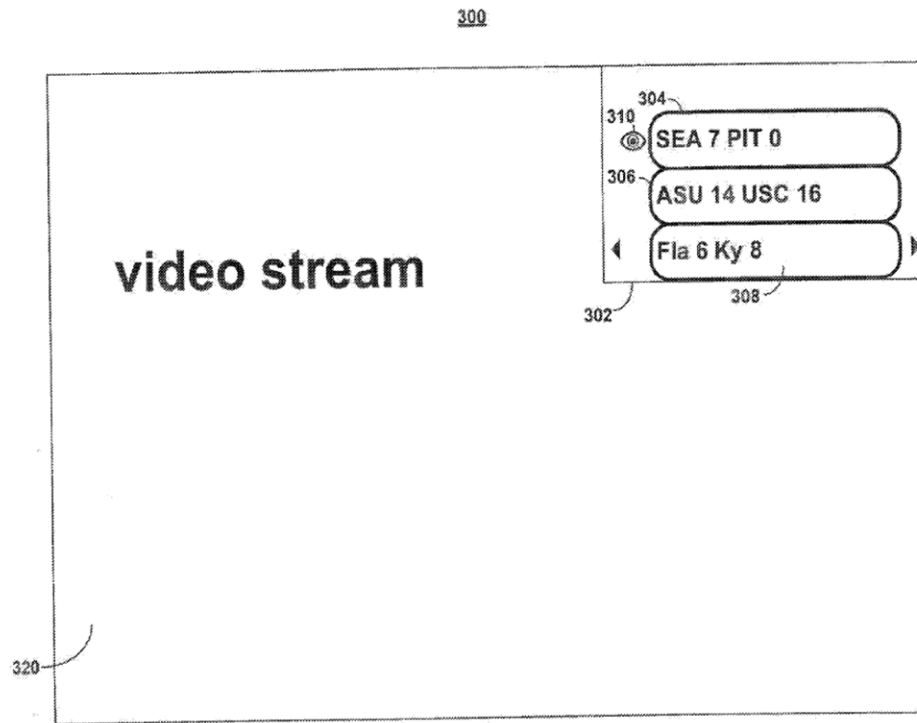
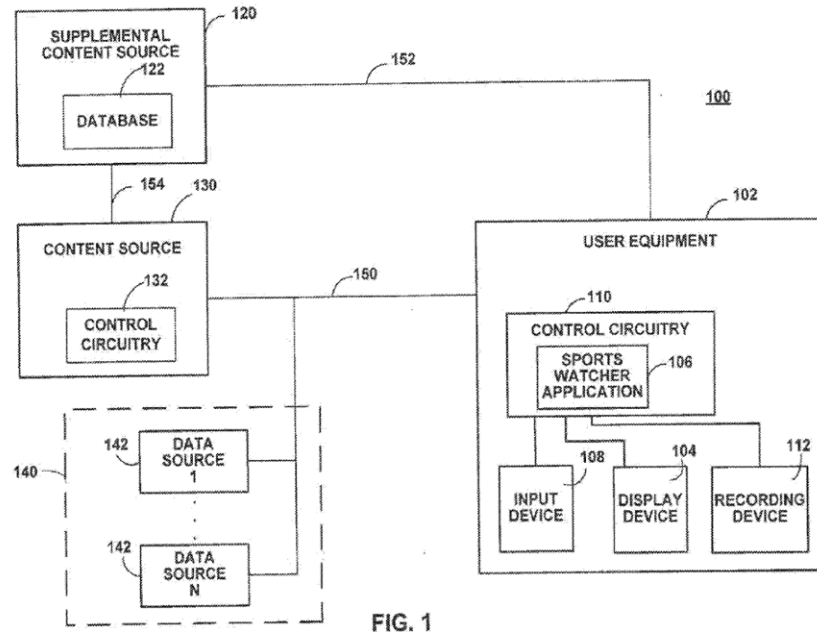


FIG. 3

(EX-1016, FIG. 3.)

Ellis describes a generic two-track architecture whereby the user's equipment "receives content in the form of signals from content source 130 and/or supplemental content source 120 over communications paths 150 and 152, respectively," for example, as shown in FIG. 1 (below). (EX-1016, ¶39; FIG. 1; EX-2001, ¶¶121-122.) The viewer may view content from content source 130 via communication path 150, while also receiving data from supplemental content source 120 via communication path 152 (e.g., data used to update the scoreboard). (EX-1016, ¶¶39-41; FIG. 1.)



(EX-1016, FIG. 1.)

Dr. Wicker conceded the lack of specificity in Ellis’s data delivery, noting that “Ellis does not explicitly disclose the backend architecture/process flows for delivering the supplemental content data.” (EX-1001, ¶106.)

Ellis differs from the inventions of the ’697 patent in multiple ways. As acknowledged by Petitioner’s own expert, Dr. Wicker, Ellis discloses only a generic computer architecture, with no discussion of a socket server of any type. (EX-1016, ¶¶39-42; EX-1001, ¶106; EX-2001, ¶¶123-125.) Further, Ellis discloses using the equipment of each viewer, individually, and is irrelevant to the problem, addressed by the ’697 patent, of delivering data to multiple users in a synchronized manner.

B. Spivey

Spivey discloses an apparatus directed to rapidly distributing live event data

to users in “real-time” utilizing a message queue server (MQS). (EX-1017, Abstract; EX-2001, §V.B.) According to Spivey, content providers experience obstacles providing real-time event data to mobile devices. (EX-1017, ¶2.) For example, conventional systems that must store data to a database before sending it to a requesting client often fail to timely deliver real-time data to mobile devices. (EX-1017, ¶¶27-28.)

Spivey therefore discloses a “message queue server” that operates to receive, sort, and transmit data payloads “immediately,” without the need for interim storage in a database. (EX-1017, ¶¶51, 46, 128, 131; EX-2001, ¶¶128-130, 133-135.) For example, as shown in FIG. 1 (below), Spivey discloses data topic entries (which include both a topic label and data payload) transmitted from live data sources (e.g., data feeds generated by computers at a live event) to a message queue server. (EX-1017, ¶37; EX-2001, ¶133-134.) The message queue server sorts the data payload into a designated queue based on the topic label, and then sends the data payload from the data queue to a live access server. (EX-1017, ¶¶47, 67; EX-2001, ¶¶135-138.) Notably, in the example of FIG. 1, the queue server 120 (which may sit “behind a firewall”) pushes the payload to LDAS 130, and “is not accessible to clients over the network directly.” (EX-1017, ¶36; FIG. 1; EX-2001, ¶¶137-138.)

System 100

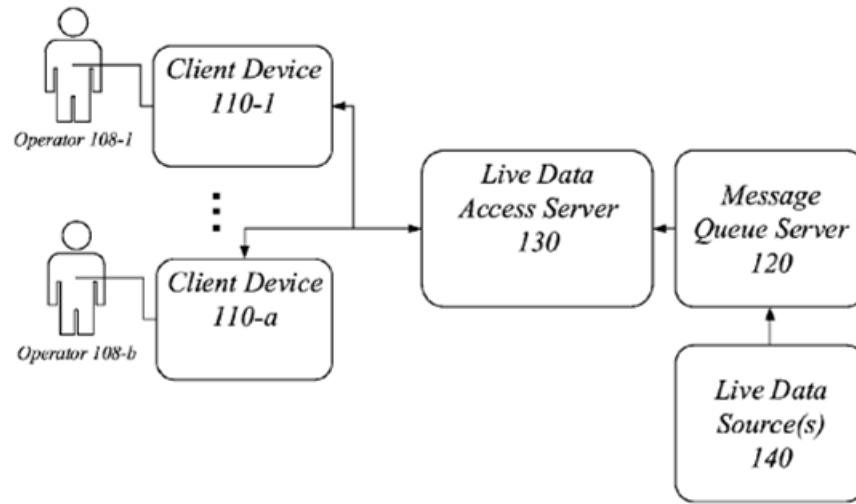


FIG. 1

(EX-1017, FIG. 1.)

LDAS 130 serves as a “public interface” for the MQS 120 and various client devices. (EX-1017, ¶38; EX-2001, ¶¶138-139.) At the LDAS, client devices may select topics related to a given event to which they want to subscribe. (EX-1017, ¶38.)

Spivey discloses implementing MQS 120 as two separate devices to “protect proprietary data.” (EX-1017, ¶57; EX-2001, ¶140.) For example, as shown in FIG. 4 (below), message queue server 120 may be implemented by MQSD 410 and live data server device 450. (EX-1017, ¶53.) The live data server device includes topic decoder 420, which sorts a topic entry into one or more appropriate queues (e.g., topic queue 442-1, 442-2, etc.) before sending the data payload to the MQSD. (EX-

1017, ¶¶49, 56; EX-2001, ¶¶141-142.) The MQSD may in turn operate as a “message broker” to facilitate receiving published messages from the live data server device and sending such messages to subscribers (e.g., the “aggregator component” and/or “live data access server”) via MQS communication component 408. (EX-1017, ¶¶57, 128, 131; EX-2001, ¶¶142-144.)

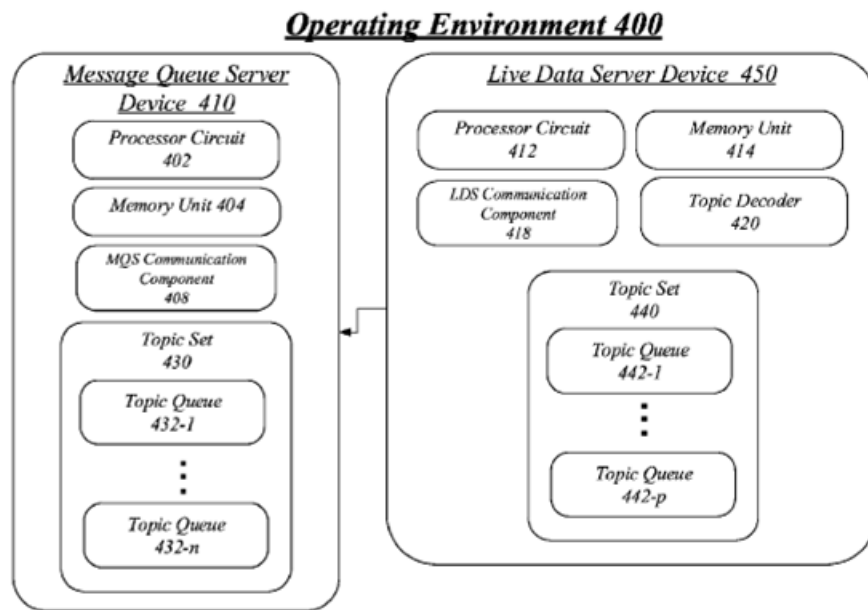


FIG. 4

(EX-1017, FIG. 4.)

Spivey differs from the inventions of the '697 patent in multiple ways. For example, Spivey does not address video delivery. Indeed, Spivey's illustrative use case is a mobile device user trying to access real-time statistics of the latest professional sporting event on the go. (EX-1017, ¶¶2, 27.) Spivey attempts to solve the user's dilemma with a messaging server for quick sending of message payloads.

C. Herzog

Herzog discloses methods and software applications for separately transmitting video and data streams from a live event and then assembling them together by matching their timestamps. (EX-1015, Abstract, ¶¶18, 53-60; EX-2001, §V.C.) Herzog's operative use case is an "Indy race" in which audio/video streams (e.g., of a racecar driver in a racecar) and associated telemetry data (e.g., data pertaining to said racecar) are collected during an event and subsequently transmitted from the event as separate streams at different physical locations "up to a mile apart within the same venue." (EX-1015, Abstract, ¶54.) For example, FIG. 4 shows sources 48a-48d within the venue (e.g., system 40), from which audio/video and associated metadata may be captured. (EX-1015, Abstract, ¶¶46, 47, 54.) Audio/video streams may be transmitted from the venue via satellite truck 51 separate and apart from telemetry data ERP gen server 49, which may transmit the associated metadata from the venue. (*Id.*)

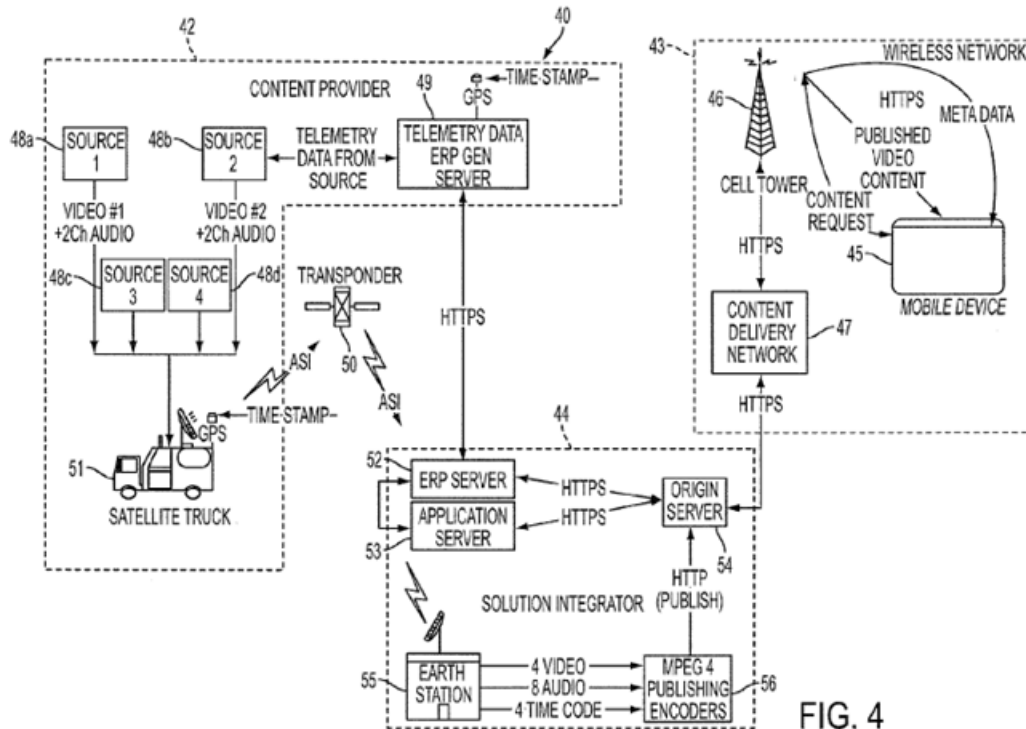


FIG. 4

(EX-1015, FIG. 4.)

Herzog discloses timestamping the audio/video stream and metadata stream using GPS protocols at both satellite truck 51 and telemetry data ERP gen server 49. (EX-1015, ¶¶17, 18; EX-2001, ¶¶147-156.) As described in Herzog, “[t]wo time stamps now exist in [the] system”—one associated with the video, and one associated with the metadata. (EX-1015, ¶56.) In order to address latency between the audio/video stream and metadata stream, the audio/video stream “is deemed to be the master time for synchronization” with the now timestamped metadata “slaved to the master time generated by the VITC [audio/video] time code.” (EX-1015, ¶¶54, 58.)

The audio/video stream and the metadata stream may be sent to a mobile device as separate protocols (e.g., in which the audio/video stream is sent via HLS protocol and the metadata is sent via HTTP protocol), as shown in FIG. 5 (below). (EX-1015, ¶¶59-61; EX-2001, ¶¶157-158.) Only when the two separate streams arrive at the mobile device are “[b]oth types of data [] assembled in the mobile device
45 via the client application software that resides within the mobile device, for appropriate presentation on the device's display.” (EX-1015, ¶58; EX-2001, ¶159.)

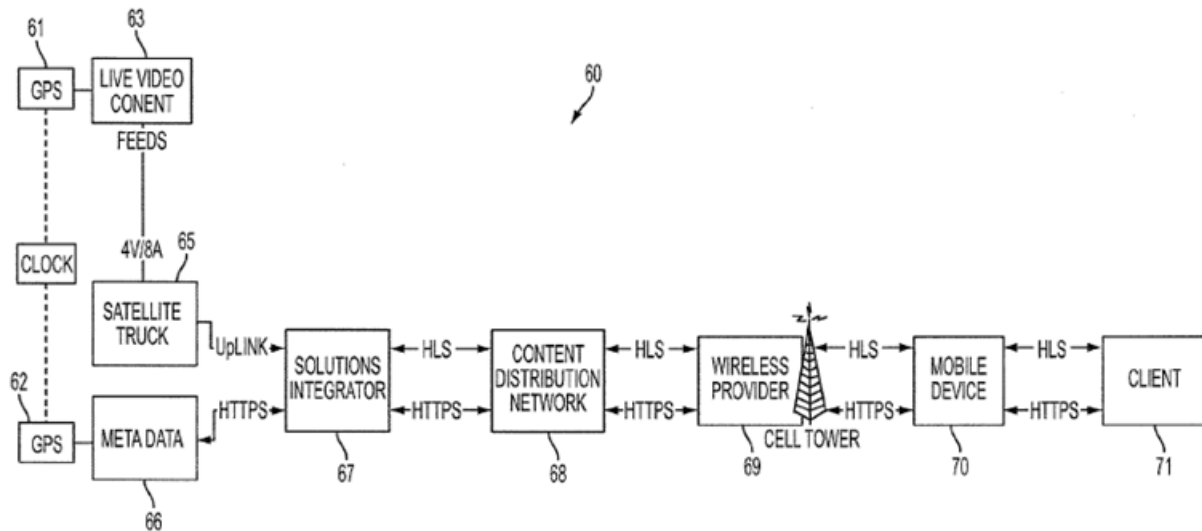


FIG. 5

(EX-1015, FIG. 5.)

FIG. 6 (below) shows that while latency associated with a “live time stamped video” may be greater than 24 seconds, latency associated with a “live time stamped meta data” may be less than 1 second. (EX-1015, ¶56; EX-2001, ¶160.) Herzog’s system implements a process for “listen[ing]” for the video stream, determining a

timestamp or code of said video stream, and then retrieving the metadata with the corresponding time stamp. (EX-1015, ¶¶70-77; EX-2001, ¶¶161-163.)

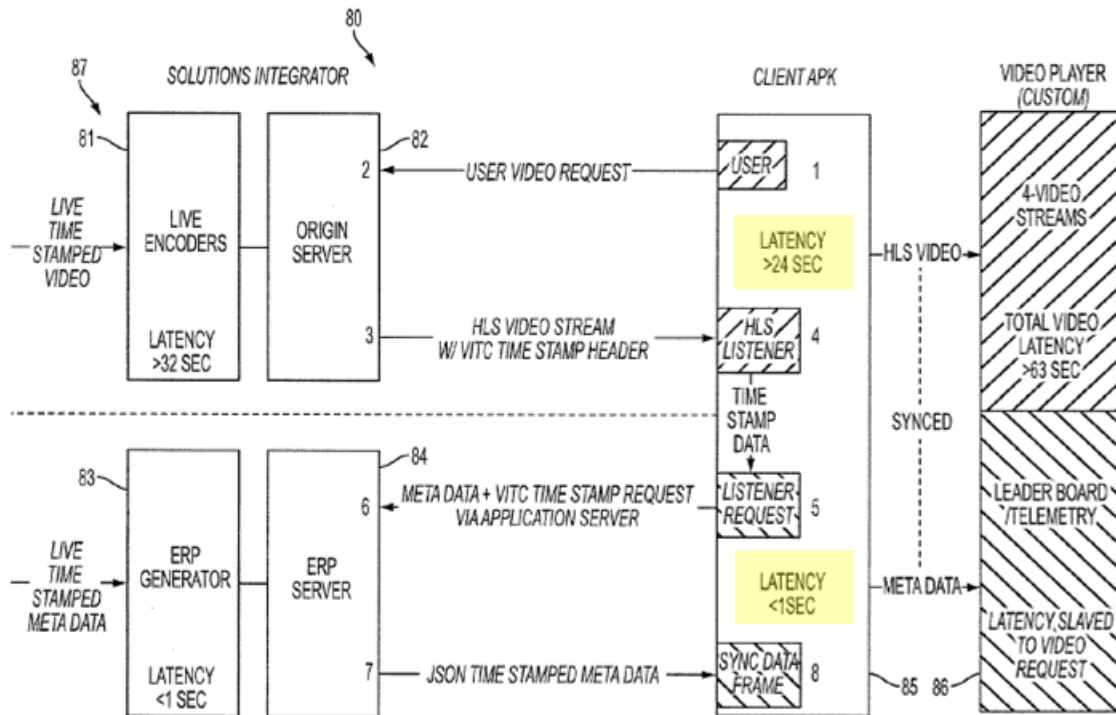


FIG. 6

(EX-1015, FIG. 6 (annotated).)

Herzog differs from the inventions of the '697 patent in multiple ways. For example, as Dr. Wicker concedes, Herzog does not disclose the claimed socket server. (EX-1001, ¶126.) Further, Herzog does not address the technical problem addressed by the '697 patent: synchronization of real-time, contextually matched and actionable event information across multiple client devices with an associated video stream. (EX-2001, ¶¶164-165.) Instead, Herzog teaches an individual user

watching a timestamp-matched (if delayed) audio/video stream and metadata stream (EX-1015, ¶¶56, 58), but timestamp matching at a mobile device does not ensure or even allow for numerous other users to have the **same** synchronized, low-latency experience.

IV. THE CHALLENGED CLAIMS ARE PATENTABLE

The Board should deny institution because Petitioner fails to show it is reasonably likely to prevail on any claim.

“In an *inter partes* review, the burden of persuasion is on the Petitioners Failure to prove the matter as required by the applicable standard means that the party with the burden of persuasion loses on that point—thus, if the fact trier of the issue is left uncertain, the party with the burden loses.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378-79 (Fed. Cir. 2015); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (noting petitioners have the “burden from the onset to show with particularity why the patent it challenges is unpatentable”).

Petitioner identifies two grounds challenging claims 19-25 and 27-30 of the ’697 patent:

Ground	Claims	Argument
1	19-25, 27-30	§103: Obvious over Ellis in view of Spivey
2	19-25, 27-30	§103: Obvious over Herzog in view of Spivey and Ellis

(Petition, 6.)

Petitioner’s grounds suffer from multiple critical deficiencies. In both grounds challenging independent claims 19, 23 and 27, Petitioner cherry-picks disclosures from incompatible references and relies on impermissible hindsight to reconstruct the claimed invention, when a POSITA would not have been motivated to combine the references’ teachings in the first place. Finally, despite Petitioner’s cobbled-together references, the resulting combination fails to disclose the recited “event socket,” (claims 19, 23) and/or means for transmitting the first score information therethrough (claim 27) of the challenged claims.

A. Ground 1: Claims 19-25 and 27-30 are Patentable over Ellis in View of Spivey

1. Independent claims 19, 23, and 27 are patentable

Petitioner fails to show that the combination of Ellis and Spivey renders obvious claim 23 of the ’697 patent because: (1) the cited prior art does not render obvious an “event socket,” (claims 19, 23) and/or a means for transmitting the first score information (claim 27); and (2) a POSITA would not have been motivated to combine Ellis with Spivey.

a) ***Petitioner’s combination does not render obvious the claimed “event socket”***

Claim Limitation	Claim Language
19.10	<i>transmit at least the first score information</i> the at least some of the first event information to the first viewer client device of the first plurality of viewer client devices <i>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</i> of the first plurality of viewer devices
23.3	<i>transmitting the first score information</i> to at least the first viewer client device <i>via a first event information communication channel between at least one first event socket of at least one socket server and the first viewer client device of the first plurality of viewer devices</i> , wherein the at least one first event socket corresponds to the first event information germane to the first live sporting event
27.3	<i>means for transmitting the first score information</i> to at least the first viewer client device via a first event information communication channel that is different from the first video communication channel

Each of independent claims 19, 23, and 27 recite an “event socket” and associated functionality. For example, independent claim 19 requires a socket server to ***“transmit at least the first score information*** 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.” (EX-1006, cl. 19.) Independent claim 23 similarly recites an “event socket.” (EX-1006, cl. 23.) And Independent claim 27 recites a “means for transmitting,” which as set forth herein would be understood by a POSITA to be a socket server *transmitting through an event socket*. (EX-1006, cl. 27; *supra*, §II.C.1.)

According to Petitioner’s expert, a “first/second event socket . . . is simply a socket” and a “socket” is a “uniquely addressable communication endpoint.” (EX-1001, ¶595; EX-2039, 63:23-64:2.) Spivey’s topic queues are neither “uniquely addressable” nor “communication endpoints.” (EX-2001, ¶¶240-241.) The Petition relies *only* on Spivey’s topic queues as the claimed “event socket”—not the MQSD server or any other component of any server. But Spivey’s “topic queues” are neither “uniquely addressable” nor “communication endpoints.” (*Id.*) Accordingly, under Dr. Wicker’s own proposed definition, Spivey fails to teach the claimed “event socket” limitation.

In its institution decision, the Board did not address the fact that it is Spivey’s topic queues themselves that must be both “uniquely addressable” and “communication endpoints” according to the Petition. For the reasons described below, they are not. Accordingly, Petitioner’s argument that Spivey’s topic queues disclose the claimed “event sockets” must fail.

Specifically, Petitioner relies on the “topic queues” of Spivey’s MQSD 410 as allegedly disclosing, e.g., “transmit at least the first score information 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 other functionality recited in claim 19 of the ’697 patent. (Petition, 39-43 (Limitation 19.10).) Petitioner similarly relies on the MQSD as allegedly disclosing, e.g., “transmitting the first score information to at least the first viewer client device via a first event information communication channel between at least one first event socket of at least one socket server and the first viewer client device of the first plurality of viewer devices, wherein the at least one first event socket corresponds to the first event information germane to the first live sporting event” (Petition, 50 (Limitation 23.3)) and “means for transmitting the first score information” (Petition, 56 (Limitation 27.3)). Petitioner’s argument fails because Spivey does not describe or suggest the MQSD (nor its “topic queues”) as being capable of: (i) handling communication to individual client devices, or (ii) functioning as uniquely addressable communication endpoints.

But in its institution decision, the Board agreed with Petitioner’s position that Spivey at least suggests a direct, websocket, connection between the MQSD and

individual client devices. (EX-2037, 34-35, 95-96.) Patent Owner respectfully submits that the explicit text of Spivey contradicts such finding. Rather, Spivey’s MQSD undoubtedly requires an intervening LDAS 130 to connect individual clients to the MQSD—only the LDAS has the necessary components (e.g., “subscription component 540,” “interface component 530”) to handle communication with numerous individual clients. (EX-2038, ¶12; EX-1017, ¶¶59-64, FIG. 5; EX-2039, 31:16-32:5, 33:8-20, 34:5-10, 35:18-36:5, 37:16-38:4.) Because the MQSD requires the intervening LDAS, the MQSD is not capable satisfying any of Limitations 19.10, 23.3 and/or 27.3.

Also in its institution decision, the Board agreed with Petitioner’s position that Spivey’s text strings (e.g., topic labels) support uniquely addressable communication endpoints. (EX-2037, 36-37, 169-171, 297-298, 354-355.) Again, Patent Owner respectfully submits that the explicit text of Spivey contradicts such finding. (EX-2039, 62:18-63:8 (stating that the topic labels require modification and “you couldn’t use them exactly as they are”).) The very user interfaces Petitioner points to in FIGS. 9 and 10 of Spivey (Petition, 38, 41) require an LDAS to access the MQSD. ((EX-2038, ¶¶11-14; EX-1017, ¶¶63, 81-90; EX-2039, 62:9-17.)

Spivey must be considered, *as a whole*; the text string topic labels of FIG. 9 represent one interface, in a series of interfaces, that visually depict individual clients ***accessing the LDAS***. (EX-2038, ¶¶11-14, 25-27; EX-1017, ¶¶63, 81-90.) Spivey

simply does not support the notion that the topics queues are assigned publicly-accessible URLs or address, or that such topic queues are designed to handle real-time access from potentially a large number of individual client devices. (EX-2039, 62:18-63:8.) Because the topic queues are not uniquely addressable communication endpoints, the topic queues are not capable of satisfying any of Limitations 19.10, 23.3 and/or 27.3.

Patent Owner demonstrates that Petitioner's argument fails due to each of the foregoing deficiencies in Spivey, and due to Petitioner's failure to show that a POSITA would have been motivated to combine or modify the references. (EX-2001, §VI.A.1.)

(1) Spivey's MQSD does not render obvious transmitting information between an "event socket" and a client device.

First, a POSITA would not understand Spivey's MQSD as transmitting information between an "event socket" and a client device. Spivey does not describe the MQSD as capable of connecting with individual clients. (EX-2038, ¶11; EX-1017, ¶¶45, 53-54, 59-64.) Considering Spivey, *as a whole*, the MQSD requires an intervening LDAS to facilitate connection with individual end user clients. (EX-2038, ¶12; EX-1017, ¶¶59, 64, FIG. 5; EX-2039, 31:16-32:5, 33:8-20, 34:5-10, 35:18-36:5, 37:16-38:4.) Because the MQSD is not described as including components for connecting to multiple individual client devices, the MQSD does

not transmit information between an “event socket” and clients, and therefore, Petitioner has not met its burden. (EX-2038, ¶¶11-19; EX-1017, ¶¶45, 53-54, 59-64.)

Petitioner’s argument rests on Spivey FIG. 4 (reproduced below), which Spivey shows as a Live Data Server Device (“LDSR”) and MQSD that essentially “plug in,” collectively, as the MQS shown in FIG. 1. (EX-2038, ¶¶13-18; EX-1017, ¶¶34, 53-58, FIGS. 1, 4)

Spivey unequivocally states: “[a]s shown in FIG. 4, *message queue server 120* may be implemented with at least two separate devices: *a message queue server device 410* and *a live data server device 450*.” (EX-1017, ¶53 (emphasis added); EX-2039, 35:22-36:5.)

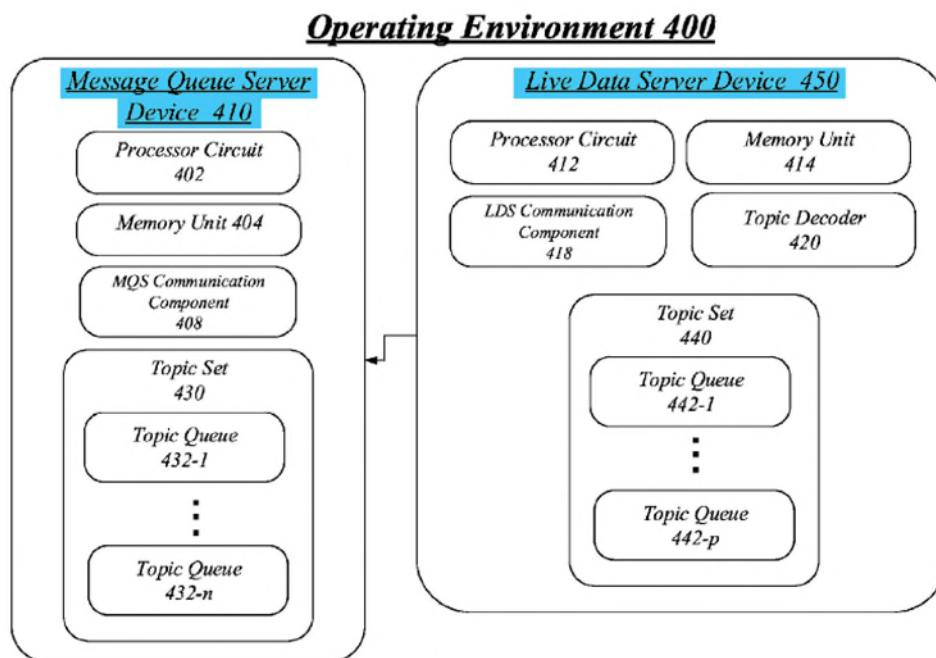


FIG. 4

(EX-1017, FIG. 4 (annotated).)

And FIG. 1 (reproduced below) clearly shows this MQS (or, the LDSR and MQSD, two-server variety) can only ferry or relay data to client devices using the LDAS. (EX-2038, ¶18; EX-1017, ¶¶38-39, 45, 53-54; EX-2039, 33:8-16.)

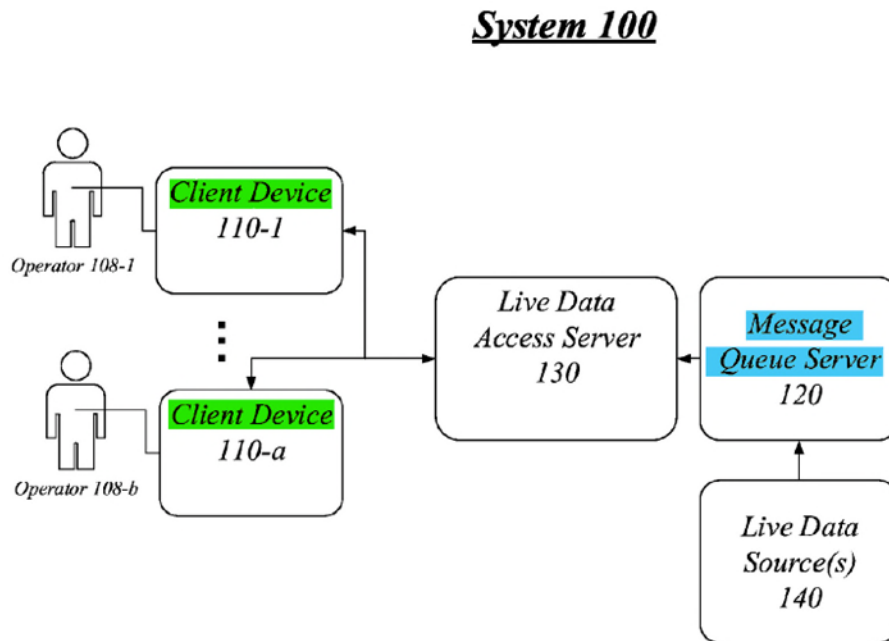


FIG. 1

(EX-1017, FIG. 1 (annotated).)

Petitioner’s expert states that “the message queue server 120 communicates directly with client devices (110-1...110-a) without the use of a live data access server,” citing Spivey at ¶¶36, 38, and 53. (EX-1001, ¶99 (“[t]his embodiment, ...shown as operating environment 400, in Figure 4”).) But Petitioner’s expert fails to consider Spivey, *as a whole*. See *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”). Indeed, Dr. Wicker admitted that Spivey “doesn’t describe

the details [of] the connection formed,” but rather such direct communication could be “implicit” because of Spivey’s use of the word “may.” (EX-2039, 38:25-41:25.)

Operating environment 400 and FIG. 4 cannot be divorced from the teachings of Spivey, *as a whole*. As a threshold matter, the LDSD and MQSD of FIG. 4 are explicitly described as an implementation of the MQS of FIG. 1 – which Spivey unambiguously depicts and describes as requiring an intervening LDAS to facilitate the connection to multiple individual client devices. (EX-2001, §VI.A.2; EX-1017, ¶¶34-35, 53-58, FIGS. 1, 4; EX-2039, 35:18-21.)

Regardless, Spivey never discloses technology that would lead a POSITA to understand the MQSD (of FIG. 4) as a communication endpoint: (i) assigned with a publicly-accessible URL or address; (ii) designed to handle real-time *access* from a potentially large number of individual clients; or (iii) capable of pushing its data packets to multiple individual clients. (EX-2038, ¶18; EX-1017, ¶¶45, 53-58.) Spivey never describes such technology because Spivey does not contemplate the MQSD as transmitting information to multiple individual clients. (EX-2038, ¶18; EX-1017, ¶¶45, 53-58.)

Here, Petitioner’s proposal—i.e., that the MQSD is accessible by individual clients—fails because it results in a contradictory or absurd result with the express technical disclosure of Spivey, again, *when considered as a whole*. Spivey’s “client devices” are only those client devices “subscribed” to “receive data via live data

access sever 130.” (EX-2038, ¶¶21-22; EX-1017, ¶39; EX-2039, 31:21-32:5.) Rather than communicate with these subscribed client devices, the MQSD communicates only by operation of an “MQS [C]ommunication [C]omponent.” (EX-2038, ¶23; EX-1017, ¶54.) And the MQS Communication Component only “push[es] the data payload *from the topic queue to a live data access server* that has subscribed to the topic of the topic queue.” (EX-2038, ¶23; EX-1017, ¶49.) Petitioner’s attempt to imbue the MQSD with additional functionality (communication with multiple individual clients) is not consistent with evidence that Spivey does not disclose any functional component of the MQSD capable of communication with multiple individual clients. (EX-2038, ¶¶11-13; EX-1017, ¶49.)

Rather, only the Spivey LDAS has the necessary components (e.g., “subscription component 540,” “interface component 530”) to handle communication to individual clients. (EX-2038, ¶23; EX-1017, ¶¶59-60, 63-64, FIG. 5.) Absent the interface component (found only in the LDAS), a user would be unable to access the user interfaces of FIGS. 8-10, and without these interfaces, the user would have no mechanism for accessing any data whatsoever. (EX-2038, ¶¶14-16, 23; EX-1017, ¶63-64.) Petitioner’s proposal therefore not only contradicts Spivey, but it also fails to establish any mechanism through which the MQSD can execute the functionality of communication to multiple client devices. (EX-2038,

¶¶21-22; EX-1017, ¶¶36, 39, 49.) Petitioner’s incomplete MQSD-based proposal would not operate as intended because it would lack the functionality to communicate with multiple individual clients. (EX-2038, ¶¶21-23; EX-1017, ¶¶36, 39, 49.) Spivey simply does not include any technical discussion of a module, or any other component for deployment in the MQSD, that would be capable of permitting the MQSD to handle the interface and subscription functionality set forth in relation to the LDAS. (EX-2038, ¶¶21-23; EX-1017, ¶49.) Petitioner’s arguments appear to be based on incorrect characterizations of Spivey, and as such, do not support Petitioner’s burden of showing a reasonably likelihood of unpatentability of the challenged claims.

Accordingly, the factual record not only fails to support Petitioner’s contention—the MQSD is accessible by individual clients—but it also demonstrates that if the Board were to accept Petitioner’s contention, it would lead to an absurd result: the contradiction of Spivey’s express teachings, including the functionality of its required LDAS. (EX-2038, ¶¶21-23; EX-1017, ¶¶36, 39, 49.) That Spivey discloses the MQSD may be implemented as a “RABBITMQ” does not change this result; the RABBITMQ must be understood with the context of Spivey, *as a whole*. *See Hedges*, 783 F.2d at 1041. Spivey discusses RABBITMQ only within the context of subscriptions between the LDAS and MQS. (EX-1017, ¶58.) Thus,

considering Spivey, *as a whole*, demonstrates that the MQSD requires a LDAS to operate; Spivey cannot render obvious the recited “socket.”

- (2) Regardless of the MQSD’s transmission destination, Petitioner fails to show that Spivey’s topic queues are “event sockets.”

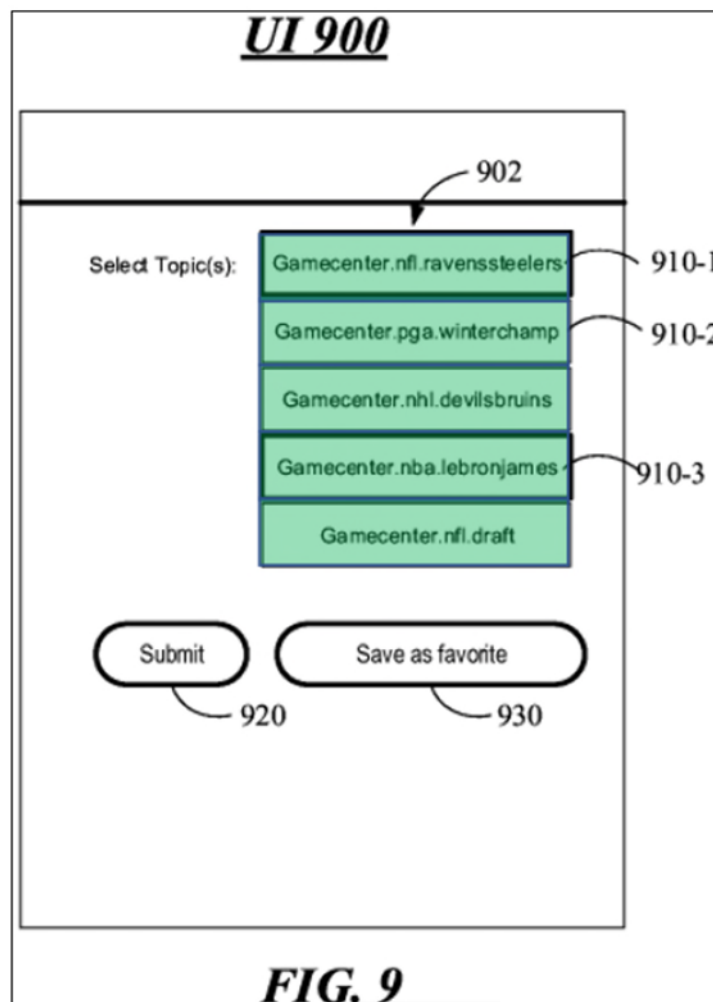
Second, Petitioner fails to show that Spivey’s topic queues are “event sockets” under Petitioner’s (and its expert’s) implied definition, which requires them to be “uniquely addressable communication endpoint[s].”¹ (EX-1001, ¶595 (“a POSA would have understood a ‘socket’ to be a uniquely addressable communication endpoint.”); EX-2039, 63:23-64:2.)

Spivey’s topic queues are merely an internal data structure within the MQSD. Petitioner does not identify any disclosure that would suggest to a POSITA that Spivey’s topic queues are “uniquely addressable communication endpoints.” To the contrary, Spivey’s disclosures would have suggested the opposite to a POSITA. (EX-2001, §VI.A.2; EX-2039, 62:18-63:8 (stating that the topic labels require

¹ Although the parties dispute the meaning of “socket” and “event socket” in the district court, Petitioner does not address either party’s construction. And even if one were to apply Petitioner’s proposed district court constructions of those terms here, Petitioner would still not meet its burden.

modification and “you couldn’t use them exactly as they are”).) Therefore, Petitioner has failed to show that Spivey’s MQSD satisfies the limitations of claim 19, 23, and 27 of the ’697 patent, regardless of whether it communicates with any client devices. (EX-2038, ¶¶25-27; EX-2001, ¶¶240-45.)

Petitioner’s argument rests on Spivey FIG. 9 (reproduced below), in which a UI 900 is shown as including text string topic labels “that when selected . . . cause[] the live data app 210 to send the selected topic(s) to *live data access server 130*.” (EX-1017, ¶87 (emphasis added), FIG. 9.)



(Petition, 41.)

As a threshold matter, UI 900 must be considered within the context of Spivey *as a whole*. See *Hedges*, 783 F.2d at 1041. UI 900 is one UI in a three-part series (e.g., UIs 800, 900, 1000 of FIGS. 8-10) that collectively depict an interface for accessing the topic MQSD topic queues ***via the LDAS via the LDAS's interface component 530***. (EX-2038, ¶¶25-27; EX-1017, ¶63 (“Interface component 530 may provide user interface elements...examples of user interfaces are discussed with respect to FIGS. 8-10.”); EX-2039, 33:11-16, 46:19-47:3.) Petitioner’s reliance on these UIs undercuts its central argument that the MQSD is capable of connecting to numerous individual end client devices. (*Infra.*)

FIG. 8 of Spivey shows an initial log-in screen for a client device that allows said client device to access topic queues via the “*Live Data Access Server Address*.” (EX-2038, ¶26; EX-1017, ¶81, FIG. 8 (element “830”). The fact that the LDAS Address “resemble[s] a uniform resource locator (URL)” is immaterial (Petition, 40); the LDAS Address is used to access the LDAS, not individual topic queues of the MQSD. (EX-2038, ¶26; EX-2039, 62:18-63:8 (stating that the topic labels require modification and “you couldn’t use them exactly as they are”).). In other words, the LDAS Address is not evidence of the MQSD topic queues being uniquely addressable communication end points; the LDAS Address demonstrates only the ability of the client device to subscribe to and interface with the LDAS. (EX-2038,

¶26; EX-1017, ¶¶55, 82.)

FIG. 9 of Spivey then shows texts strings of data topics available to the client device, again, using the LDAS. (EX-2038, ¶27; EX-1017, ¶84). But the text strings shown in FIG. 9 are not URLs themselves, nor are they used in URLs (or any other address in Spivey). (EX-2038, ¶27; EX-1017, ¶¶84-86.) A “topic label” is merely that; a label, such as that used to identify data in an internal data structure. (EX-2038, ¶27.)

FIG. 10 of Spivey then shows example text data (e.g., text data 1004, 1006) that may be presented to a user, again, using the LDAS. (EX-1017, ¶88.) Spivey describes presenting this text data at the user interface in connection with the topic label selected in relation to the user interface of FIG. 9. (EX-1017, ¶¶84-88.)

Accordingly, a POSITA would have understood that Spivey’s “topic queue” is merely an organization of data, such as a database table, that includes information about a particular topic. (EX-2001, ¶¶240-41, 245.) Without more, a POSITA would not consider such a database, message queue, or other internal data structure by itself to be a “uniquely addressable communication endpoint” because as disclosed by Spivey, the queues themselves lack any address at all through which they communicate. (EX-2001, ¶240; EX-2039, 62:18-63:8 (stating that the topic labels require modification and “you couldn’t use them exactly as they are”).) Contrary to the teachings of Spivey, Petitioner and its expert, Dr. Wicker, only argue that the

client devices disclosed in Spivey “use these topic label text strings to connect and subscribe to MQSD’s topic queues.” (EX-1001, ¶596; Petition, 40.) But this is incorrect—Spivey does not disclose that the text strings are used to “connect” to the MQD’s topic queues. To support this incorrect statement, Petitioner and Dr. Wicker must erroneously state that the client devices “request a live data connection” with the MQSD by “selecting or entering the address or connection information to a particular MQSD,” citing paragraphs 81-82 of Spivey. (EX-1001, ¶596.) But those paragraphs of Spivey are explicit that the client devices request a live data connection with the **LDAS**, *not* the message queue server (and not the topic queues within the MQS). (EX-1017, ¶¶81-82; EX-2001, ¶¶173-174.)

Accordingly, Petitioner fails to show that Spivey’s topic queues are “***uniquely addressable communication endpoint[s]***,” which it contends is required for the “event socket” limitation. (EX-1017, ¶¶46-49; EX-2001, ¶¶243-244; Petition, 39-41; EX-2039, 63:23-64:2.) Indeed, Spivey discloses that its topic queues are internal to its MQS, and Spivey nowhere discloses or suggests that the topic queues are “uniquely addressable” or “communication endpoints.” (EX-2038, ¶¶25-27; EX-2001, ¶¶240-45.)

Indeed, the only potential “communication endpoint” Spivey discloses as being “uniquely addressable” is its LDAS, not any of the topic queues within the MQS. (EX-1017, ¶¶38-39; EX-2001, ¶241.) The only URL that Spivey’s clients are

provided is for the LDAS, not the message queue server, and certainly not the topic queues therein: “UI 800 may also include an address UI element 830 to allow the operator to select or enter the address or connection information to a particular live data access server.” (EX-1017, ¶82; *see also id.*) Nowhere does Spivey disclose or suggest any topic queue with its own “unique” URL—and neither Petitioner nor Dr. Wicker argues otherwise. (EX-2039, 62:18-63:8 (stating that the topic labels require modification and “you couldn’t use them exactly as they are”).)

This is fundamental to how Spivey operates: the client connects to the LDAS and selects the topics they subscribe to; the LDAS then subscribes to those topics on the MQS for the client. (EX-1017, ¶¶49, 77-78, 128, 131, FIG. 7; EX-2001¶¶136-137, 181-182.) When there is an update for a topic queue, the LDAS must receive that update, determine which of the clients are subscribed to that topic, and then push that data to the client. (EX-1017, ¶¶38, 46, 49, 79-80.) There is no disclosure of any connection for the client to anything other than the LDAS, and certainly no disclosure that each topic queue is a “uniquely addressable communication endpoint.” (*See generally* EX-1017; EX-2001, ¶¶180-182.)

But even if one were to accept Petitioner’s argument that requires an “event socket” to be a “uniquely addressable communication endpoint on a server where first/second event information is provided to VCDs” (Petition, 39-41), the fact that each “topic queue” has a text identifier does not mean that topic queues are either

endpoints or uniquely “addressable.” (EX-2001, ¶247.) Indeed, the MQSD is only capable of communicating via an MQS Communication Component, its topic queues are not described as having any functionality themselves to communication, much less be individually addressable. (EX-2001, ¶¶241-243.) As such, Spivey does not disclose that any URL in its system includes a topic text identifier or that a URL corresponds to any of the topic queues. (*See generally* EX-1017.) The only Spivey components that have public addresses (corresponding to the URL in Spivey) are the LDAS’s (not the message queue server) themselves, not the topic queues within the message queue server. (EX-1017, ¶¶81-82.)

Petitioner relies entirely on Spivey’s topic queues as allegedly disclosing the claimed “event sockets,” which Petitioner combines with Ellis. (Petition, 39-43.) Accordingly, Petitioner fails to establish that Spivey, alone or in combination with the other references, teaches or renders obvious the claimed “event sockets.”

- (3) Petitioner fails to articulate sufficient motivation to combine and modify the prior art.

Regarding Limitation 19.10, Petitioner argues that a POSITA “would have understood that Spivey’s topic queues disclose first/second event sockets corresponding to the first/second event information germane to the first/second live sporting event including score information” without even attempting to show how the systems in Spivey and Ellis are compatible with one another (Petition, 39-41.) As discussed below in §IV.A.1.b, *infra*, Petitioner’s combination fails to account for

critical distinctions between Ellis's and Spivey's teachings, explain the modifications necessary to combine such teachings, or articulate why a POSITA would have been motivated to make the necessary modifications and proposed combination. Again, Petitioner's lack of specific motivation to combine the prior art teachings demonstrates its impermissible reliance on hindsight bias. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007); Ashley A. Bolt, *Combating Hindsight Reconstruction in Patent Prosecution*, 64 EMORY L.AW J. 1137, 1158 (2015).

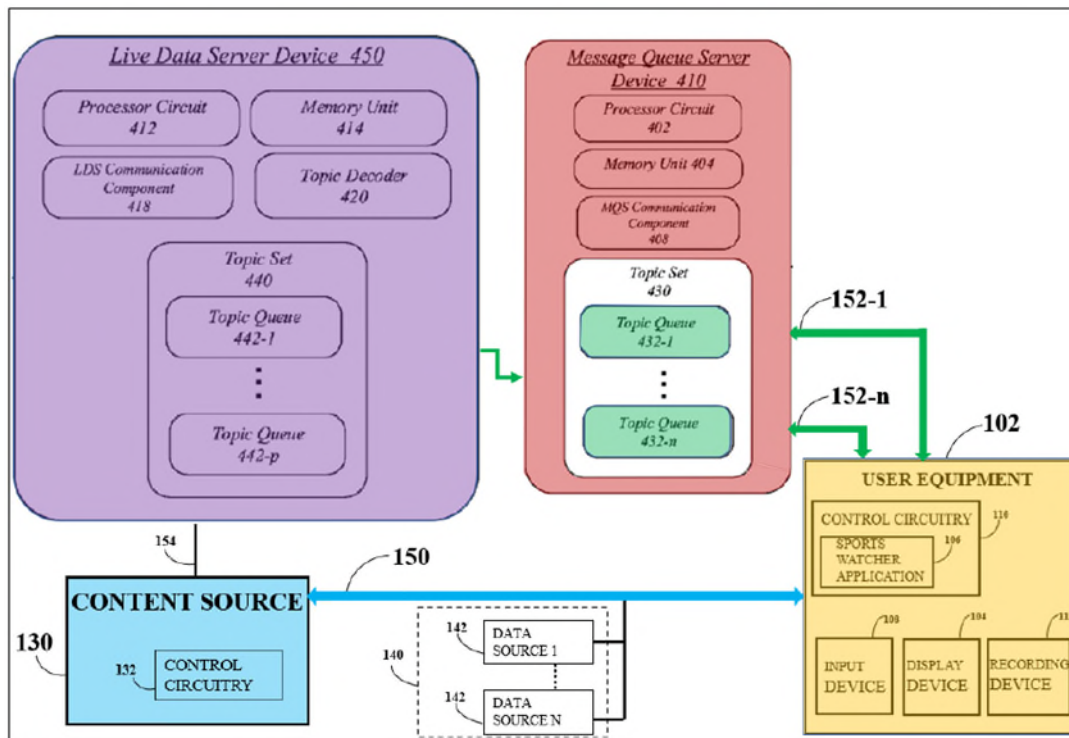
b) Petitioner fails to show that a POSITA would have been motivated to combine Ellis with Spivey.

In its institution decision, the Board did not consider the inoperability of Petitioner's Ellis/Spivey combination caused by the lack of any server component that would transmit data between the MQSD (from Spivey) and the user equipment (from Ellis). Further, Petitioner fails to show that a POSITA would have been motivated to combine Ellis with Spivey. (EX-2001, §VI.A.1.) Petitioner's proposed reduction in latency would not occur because Petitioner's proposal disrupts the very message flow in Spivey that allegedly reduces latency. (EX-2001, ¶¶263, 279, 215-216.) Rather, Petitioner's rationale to combine the prior art rests on impermissible hindsight.

- (1) Petitioner's proposed combination is fundamentally inoperable and departs from the express teachings of the prior art.

In an attempt to recreate the claimed architecture of the '697 patent, Petitioner

cobbles together elements of Ellis’s media system with Spivey’s “second operating environment” in order to create the following concept:



(Petition, 21; EX-2039, 69:1-6.)

Petitioner replaces the Ellis supplemental content source 120 and database 122 with Spivey’s MQSD 410 and the live data server device 450, all in an effort to somehow “upgrade the data delivery system” of Ellis. (Petition, 21-22; EX-1017, ¶53, FIG. 4; EX-1016, ¶39, 41, FIG. 1; EX-2001, ¶166.) But a POSITA would not have been motivated to implement Spivey’s database-less system in the Ellis architecture because such formulation would be inoperable. (See EX-2001, ¶¶172, 190-192, 194-196; EX-2038, ¶¶28-29.)

Petitioner’s Ellis/Spivey diagram would be inoperable at least because there is no server component that functions to relay data between the MQSD and the user equipment. (EX-2001, ¶208.) Even if a POSITA were to pluck the two-component MQSD and LDSD of Spivey FIG. 4 and insert it into Ellis’s architecture (which a POSITA would not do), Spivey never discusses or contemplates the MQSD and/or the MDSD operating in isolation, without any intervening LDAS. (EX-2001, §VI.A.1; *see generally* EX-1017.) And Spivey never describes or contemplates the MQSD as having a uniquely addressable communication endpoint or other publicly available address by which individual end clients could communicate with the MQSD. (*Id.*) As such, Petitioner’s insertion of the MQSD/LDSD into Ellis’s architecture has in fact disrupted any flow of data to the user equipment, thereby rendering the proposed combination inoperable. (EX-2001, ¶¶19-21.) To the extent that the user equipment in Petitioner’s Ellis/Spivey combination is now incapable of receiving any data, a POSITA would not be motivated to make such combination.

Petitioner’s Ellis/Spivey diagram does not include the LDAS. (Petition, 21.) Nor does Petitioner’s diagram show literally any other mechanism by which to transmit data from the MQSD other than the “MQS Communication Component.” (*Id.*) It is only through the LDAS of Spivey (which includes the necessary components—“subscription component 540” and “interface component 530”—to handle communication to individual clients) that clients can access data from the

MQSD. (EX-2038, ¶12.) Absent the LDAS, and its subscription component or interface component, Spivey’s architecture will not operate to deliver data to the user equipment shown on Petitioner’s make-believe diagram. Therefore, Petitioner’s Ellis/Spivey combination would not operate for the straightforward reason that there is no component or mechanism for the use equipment to receive data. (EX-2038, ¶¶28-29.)

The POSITA, when faced with Ellis, would not have found the replacement of the supplemental content source with the LDSD/MQSD of Spivey to complement Ellis’s operation nor constituted a “simple substitution,” but rather would have seen it as hindering the operation of a fundamental principle of operation of Ellis (namely, providing at least some data to the user equipment), and therefore, the POSITA would not have attempted such combination. (EX-2001, ¶203.)

- (2) Petitioner’s proposed motivations to combine Ellis and Spivey do not withstand scrutiny.

Petitioner’s proposed rationales fail to satisfy the Federal Circuit’s obviousness rubric—i.e., obviousness turns on “whether a skilled artisan not only could have made but **would have been motivated** to make the combinations or modifications of prior art to arrive at the claimed invention.” *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (emphasis added).

As one example, Petitioner alleges that a POSTA would seek to integrate Spivey’s servers in Ellis’s system “to reduce latency.” (Petition, 22.) As previously

explained, however, Petitioner’s modifications to Spivey’s teachings radically alter the solution Spivey purportedly taught for reducing latency (§IV.A.1.b.1, *supra*; EX-2001, §VI.A.1), and a POSITA would not have a reasonable expectation that any beneficial reductions in latency would be achieved in the resulting combination. (EX-2001, ¶¶194, 207-212; EX-2038, ¶28.) Petitioner’s bare assertion that a POSITA would look to improve Ellis’s “latency issues” (Petition, 20-21), which Ellis does not identify as a problem (EX-2039, 81:14-19), ignores that the proposed combination is inoperable, and as such, a POSITA would have no reasonable expectation of success. (*See* §IV.A.1.b.1, *supra*; EX-2001, §VI.A.1.)

Despite this, Petitioner relies on Spivey’s promise of reducing latency to a time period “at least two orders of magnitude shorter than conventional time periods of legacy devices.” (EX-1017, ¶96; Petition, 37, 41.) In its institution decision, the Board agreed with Petitioner’s position that Spivey would offer such latency reduction to the Ellis system. (EX-2037, 20, 81.)

Patent Owner respectfully submits, however, that Spivey’s promise of “two orders of magnitude” reduction is only achievable (if at all) by implementing the message flow Spivey discloses—i.e., by allowing the LDAS to “push the data payload to client device 110, and to any other connected client devices that also requested that topic.” (EX-1017, ¶96.) And Petitioner completely ignores this mission critical component in its Ellis/Spivey combination.

As another example, Petitioner alleges that implementing “certain portions” of the Spivey disclosure into Ellis’s disclosed architecture would “have been obvious because doing so would have required only the simple substitution of known elements to obtain predictable results.” (Petition, 23.) To establish a prima facie case of obviousness, however, there must be a reasonable expectation of success. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *see, also*, KSR, 550 U.S. 398 at 418. The immediate “push” provision of data taught by Spivey is not compatible with the enhanced viewing and tuning techniques of Ellis, and a POSITA would not have had a reasonable expectation of success. (EX-2001¶¶210-212.) Petitioner’s Ellis/Spivey combination is not a matter of a simple substitution because neither Spivey nor Ellis disclose how to integrate Spivey’s immediate “push” data delivery and Ellis’s video delivery. (EX-2001¶¶210-212.)

As a third example, Petitioner alleges that “Spivey provides a complementary solution describing the details of the backend architecture for transmitting event data to multiple users.” (Petition, 23.) Petitioner’s argument appears to rest on the notion that because Ellis does not specify the backend architecture of the supplement content source 120, that literally any architecture could be slotted into the Ellis interactive media system 100. (EX-2001¶¶211-212.)

Absent an articulated reason why a POSITA would specially choose Spivey’s architecture (among a universe of options), however, the Petitioner’s rational is

merely conclusory, and therefore insufficient to demonstrate a motivation to combine Ellis with Spivey.

(3) Petitioner relies on impermissible hindsight bias.

Absent a clearly articulated reason to combine Ellis, Spivey, and POSITA's knowledge, ***Petitioner relies exclusively on impermissible hindsight*** to stitch together unrelated elements of the prior art in a misguided attempt to reconstruct the invention addressed by the '697 patent. Petitioner attempts to ***integrate*** Spivey's "push" data techniques with Ellis's television techniques, despite neither reference disclosing such integration. (EX-2001, ¶¶215-222.)

As set forth by the Federal Circuit, "[t]he invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time." *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985). Petitioner must put forward some "explanation as to how or why the references would be combined to arrive at the claimed invention...[otherwise] hindsight bias [becomes] the thread that stitches together prior art patches into something that is the claimed invention." *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (citation omitted).

As one example of Petitioner's reliance on hindsight, Petitioner uses the claims of the '697 patent as a guidepost to fill in certain missing details of the Ellis supplemental content source delivery architecture. As Dr. Wicker concedes, "Ellis

does not explicitly disclose the backend architecture/process flows for delivering the supplemental content data.” (EX-1001, ¶106.)

But a POSITA would not create the backend architecture proposed by Petitioner without knowledge of the ’697 patent claims (*see* EX-2001, §VI.A.1). For example, the claimed invention addresses, among other things, the technical challenge of providing the same event information in a synchronized manner to all viewers of a broadcast (e.g., via the claimed socket architecture and paired video stream). But **synchronization** of contextual-matched event information with video streaming is taught only in the specification of the ’697 patent, which is unavailable to Petitioner as a basis for formulating a rationale to combine Ellis and Spivey.

Moreover, absent reference to the ’697 patent, there was no reason for implementing Spivey’s non-video-related teachings into Ellis’s system, which necessarily requires video delivery. Spivey does not teach or suggest how to implement either MQSD or the LDSD with video streaming. Again, **synchronization** of contextual-matched event information with video streaming is taught only in the specification of the ’697 patent, which is unavailable to Petitioner as a basis for formulating a rationale to combine Ellis and Spivey.

2. Dependent Claims 20-22, 24-25 and 28-30 are patentable

Because Petitioner has failed to establish that independent claims 19, 23, 27 is unpatentable, Petitioner cannot meet its burden for the challenged dependent claims 20-22, 24-25 and 28-30, which each depend, directly or indirectly, from one

of claims 19, 23 or 27. *Twinstrand Biosciences, Inc. v. Guardant Health, Inc.*, IPR2022-01115, Paper 14, *19 (PTAB Dec. 30, 2022).

a) Dependent Claim 21

As stated above, dependent claim 21 is patentable at least because of its dependence on independent claim 19. Petitioner’s arguments regarding dependent claim 19 are deficient for additional reasons.

Dependent claim 21 further recites “wherein in C), the at least one socket server further: **transmits and receives** first chat information regarding the first live sporting event video-based commentary included in the first broadcaster's live stream of digital content via at least one first chat/system event Internet communication channel **between at least one first chat/system event socket** of the at least one socket server and the first viewer client device of the first plurality of viewer client devices.” (EX-1006, cl. 21 (emphasis added).) Petitioner alleges that “Ellis in view of Spivey discloses a socket specifically designated for chat/system information” because “Spivey utilizes topic queues to organize ‘data payloads’ that ‘relate to a specific game between two NFL teams.’” (Petition, 47 (citing EX-1017, ¶¶51-52, and Petitioner’s previous arguments at Petition, 38-39) (emphasis added).)

But Spivey’s topic queues are incapable of at least “receiving first chat information.” (See generally EX-1017.) Spivey repeatedly describes “pushing” data from its topic queues to a LDAS (e.g., EX-1017, ¶46 (“MQS communication

component 308 may also receive requests to subscribe to topics in a topic set 330, and ***may push data from topic queues 332-1, 332-n*** to the subscribers”), ¶49 (“MQS communication component 308 may then ***push*** the data payload ***from the topic queue to a live data access server***”), ¶51 (“[a] topic queue 332 may be a queue data structure, in particular ***a first-in first-out queue***, where data payloads are placed and immediately pushed to a subscribing live data access server”).)

So, while data may be pushed out of Spivey’s topic queues, its topic queues are not described as being capable receiving data from a client device. (EX-2001, ¶143.) Spivey’s topic queues are one-way streets traveling toward the LDAS and further downstream client devices. In fact, it’s one of Spivey’s central premises—the immediate “push” provision of data to subscribers. (EX-1017, ¶51.)

Petitioner appears to propose an entirely new functionality whereby a client device sends “chat information” to Spivey topic queues. (Petition, 46-48.) But this functionality is not described in Spivey, nor in any of the references. The idea that Spivey’s topic queues could accept information of any kind (much less “chat information”) from a client device is contrary to Spivey’s “first-in, first-out queue” and would not be attempted. (EX-2001, ¶207.) Moreover, as explained above, Spivey’s LDAS sits between its message queue server and client devices, and so Spivey’s topic queues do not receive anything from the client devices, nor does Spivey describe the topic queues as doing so. (EX-2001, ¶143.)

Accordingly, Ellis in view of Spivey does not render obvious dependent claim

21.

B. Ground 2: Claims 19-25 and 27-30 are Patentable over Herzog in view Spivey and Ellis

1. Independent claims 19, 23, and 27 are patentable

Petitioner fails to show that the combination of Herzog and Spivey renders obvious claims 19, 23 and 27 of the '697 patent because: (1) the cited prior art does not render obvious an “event socket,” (claims 19, 23) and/or a means for transmitting the first score information (claim 27); and (2) a POSITA would not have been motivated to combine Herzog with Spivey.

a) Petitioner’s combination does not render obvious the claimed “event socket” and/or means for transmitting the first score information therethrough.

Ground 2—just like Ground 1A—relies on Spivey as allegedly disclosing an “event socket” and associated functionality. (Petition, 62-65, 75-77.) For the reasons stated above, Spivey—alone or in combination with the other prior art—does not teach or render obvious the claimed “event socket.” (§IV.A.1.a, *supra*.)

Accordingly, Petitioner fails to show that its Herzog/Spivey/Ellis combination renders obvious independent claims 19, 23 and 27.

b) Petitioner fails to show that a POSITA would have been motivated to combine Herzog with Spivey and/or Ellis.

Petitioner argues that a POSITA would have implemented Spivey’s MQSD at Herzog’s “origin server” to decrease latency. (Petition, 62-65.) But even if a

POSITA made this modification (which it would not), the resulting combination would not result in a meaningful (i.e., 1-2 orders of magnitude) reduction in latency. (EX-2001, ¶¶279-290; EX-2038, ¶¶30-34; EX-2039, 88:23-91:4.) The combination would not result in reduced latency because no matter how fast Spivey makes the data transmission, the overall Herzog latency is defined by the other, larger systemic sources of latency present within the video/audio feeds. (EX-2039, 88:23-91:4.) As such, a POSITA would find the combination as having reduced functionality, and therefore, would not be motivated to attempt such modification. Rather, Petitioner's rationale to combine the prior art rests on impermissible hindsight. (EX-2001, §VI.B.1.)

In this regard, in its institution decision, the Board respectfully overlooked Herzog's requirement for a robust latency period during which Herzog performs its timestamp synchronization techniques. (EX-2037, 45-47.) Herzog uses, and in fact relies upon, the disparate latency periods of a video/audio stream and meta-data stream to synchronize different delays between each stream. (EX-2001, ¶293; EX-2039, 88:23-91:4.) Alternation of these latency periods risks disrupting the very latency periods used by Herzog for its timestamp synchronization techniques, and thus, a POSITA would understand such alteration to create an inoperable system. (EX-2001, ¶¶286-287.)

Moreover, in its institution decision, the Board did not address the fact that even if one could somehow reduce the latency of Herzog's meta-data stream using Spivey (which could not be done regardless), there is no basis presented by Petitioner for reducing the other, larger systemic sources of latency present in Herzog's audio/video stream. Petitioner does not even address the latency caused by Herzog's audio/video stream, nor does Petitioner acknowledge that any reduction in the latency of telemetry data would not permit the faster receipt of audio/video data by the client.

In light of these and other considerations set forth below, a POSITA would lack the requisite motivation to combine the references. And therefore, Petitioner has failed to demonstrate that Ground 2 renders claims 19, 23, and/or 27 obvious.

- (1) Petitioner's proposed combination is fundamentally inoperable.

Petitioner admits that "Herzog does not specifically disclose some backend server architecture supporting the data distribution—the claimed socket server," and instead proposes to supply such functionality by implementing Herzog's origin server as a "websocket server, as taught by Spivey." (Petition, 62-63; EX-1015, FIG. 4.)

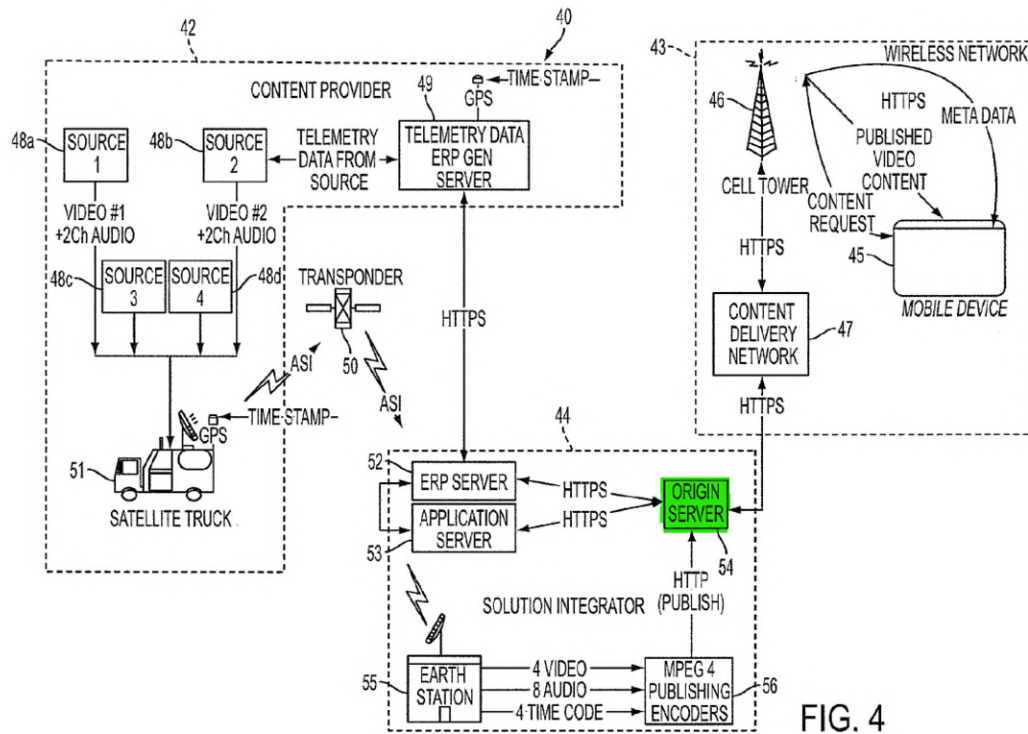


FIG. 4

(EX-1015, FIG. 4 (annotated).)

But Petitioner’s proposed revamp of the origin server to “improve Herzog’s latency issues,” (Petition, 63), ignores that Herzog’s system latency is ultimately defined by other components in the video/audio pipeline, not by the origin server. (EX-2001, ¶287; EX-2038, ¶¶30-31; EX-1015, ¶¶58, 74.) Herzog’s stated goal is matching timestamped video/audio streams with timestamped meta-data streams at a mobile device. (See EX-1015, ¶¶56, 64, 74; EX- 2001, §VI.B.1, ¶¶145, 293; EX-2038, ¶30.) Herzog teaches a process performed within the latency period of video/audio delivery to synchronize different delays between video/audio streams and metadata streams. (EX-1015, ¶¶74, 82.) This process relies on the projected latency period to synchronize the video/audio stream with the metadata stream. (EX-

1015, ¶¶74, 82; EX-2001, ¶¶210-212; EX-2039, 88:23-91:4.)

Petitioner's combination would be inoperable because, notwithstanding the absence of any reason to upgrade Herzog's data delivery system, unfettered provision of data by Spivey's architecture would not address the causes of latency with respect to the video/audio feed. (EX-2001, ¶287; EX-2038, ¶¶30, 33.) Spivey does not address video delivery; it concerns the immediate push of data to a subscribed client device. (EX-2001, §V.B; EX-1017, ¶¶2, 27.) Spivey includes no technical discussion that would enable the faster provision of video. (EX-2001, §V.B; EX-1017, ¶¶2, 27.) Therefore, at most, Spivey would only be capable of modifying the Herzog telemetry data.

The ultimate system latency in Herzog is defined by other aspects of the video/audio feed. (EX-1015, ¶74.) It is during this greater latency of the video/audio feed that timestamp synchronization occurs. (EX-2038, ¶¶30, 33-34; EX-1015, ¶¶51, 58, 74; EX-2039, 88:23-91:4.) Therefore, it is not possible to meaningfully improve the latency of Herzog with the Spivey MQSD because no matter how fast the data is (i.e., no matter how much the "2 seconds" is reduced), Herzog cannot complete its timestamp synchronization technique without the video/audio feed, which has a greater latency, and which Petitioner agrees would be maintained in its hypothetical combination. (EX-2038, ¶¶30, 33-34; EX-1015, ¶¶51, 58, 74; Petition, 63.)

A POSITA would have therefore found Petitioner's proposed alteration of

Herzog's latency periods as inoperable, and would not have attempted Petitioner's combination. (EX-2038, ¶¶30, 33-34; EX-2001, ¶¶286-289.) For instance, the metadata (which already transits the origin server described by Herzog) has up to 2 seconds of latency. Thus, the inclusion of Spivey could reduce the latency of data moving through the origin server by at most 2 seconds.

But Herzog's latency is ultimately driven by the substantially larger latency period of the audio/video feed—63 seconds. (EX-2038, ¶¶30, 33-34; EX-2039, 88:23-91:4.) Petitioner does not address the latency caused by Herzog's audio/video stream, nor does Petitioner acknowledge that any reduction in the latency of telemetry data would not permit the faster receipt of video data by the client. (EX-2038, ¶¶30, 33-34, Petition, 62-65.) The video data unambiguously has a latency of up to 63 seconds, as originally described by Herzog, and also transits the origin server. (*Id.*) Therefore, the rest of the video feed encoding, decoding, and transmission process must be responsible for the large majority of the 63 seconds of latency. (*Id.*) Thus, even if implementing Spivey's MQS in place of the origin server were to result in a reduction in the video feed's latency, the reduction would not reduce the latency by a meaningful amount. (EX-2038, ¶¶30, 33-34.) For example, if Spivey was able to reduce all of the latency found in the meta-data delivery process, which is physically impossible, it would reduce the latency of the system by only 2 seconds. We would expect to see a similar latency reduction in the

video feed of 2 seconds, resulting in a total video latency of 61 seconds, as opposed to 63 seconds. (*Id.*)

Moreover, Petitioner’s combination detracts from, and even prevents, Herzog’s synchronization between various video/audio streams and meta-data streams, which requires a robust latency period to perform. (*see* EX-1015, ¶¶74, 82; EX-2038, ¶¶30, 33-34.) Latency is a feature of Herzog, not a bug. According to Herzog, the video/audio stream enjoys a longer delay, and as such, the delayed time allows Herzog to retrieve corresponding meta-data with the same VITC time stamp as the audio/video stream.

Accordingly, providing faster data with Spivey (as Petitioner proposes) could only possibly result in such data waiting longer for the video/audio stream to arrive—an outcome that a POSITA would not view as an improvement and, thus, would not be attempted. (EX-2001, ¶286; EX-2038, ¶33.) This would not be viewed as an improvement because the Herzog system would be required to process, manage or otherwise store all of the additional, faster-arriving data, which would invariably require additional servers, databases, and other components a POSITA would understand to consumer system resources and result in over unreliability (due to the increase in components and accompanying complexity). (EX-2038, ¶¶30-31.)

Rather, a POSITA would have understood Spivey’s teachings of providing “immediate” data without the constraints of associated video feeds to render Herzog

substantially inoperable. (EX-2038, ¶¶30, 33-34.) That is, even if Spivey’s message-based architecture were somehow manipulated to replace Herzog’s origin server 54 (which a POSITA would not do), the resulting combination would include unfettered provision of Spivey data payloads to the mobile device. A POSITA would not understand unfettered immediate delivery of data payloads to the Herzog mobile devices as necessary or even helpful to the mobile device user because Herzog still needs the projected latency period to perform synchronization between audio/video data and meta-data. (See EX-1015, ¶¶74, 82; EX-2001, EX-2038, ¶¶30, 33-34.)

Therefore, a POSITA would not have attempted Petitioner’s proposed combination, because the POSITA would have understood that doing so would have decreased the functionality of the Ellis/Spivey system and rendered it inoperable. (EX-2038, ¶¶30-31.)

- (2) Petitioner’s proposed motivations to combine Herzog, Spivey and Ellis do not withstand scrutiny.

Petitioner attempts to resolve the fundamental inoperability of its Herzog/Spivey/Ellis combination with various proposed rationales for making the combination. (Petition, 60-66.) But Petitioner’s proposed rationales fail. (See EX-2001, §§VI.B.1-VI.B.2.)

As one example, Petitioner alleges that a POSITA would have “look[ed] to improve Herzog’s latency issues” and “upgrade the [Herzog] data delivery system to reduce latency.” (Petition, 63.) But faster Herzog data (if that were even possible

with Spivey’s architecture) would not solve any video latency problem in Herzog. Accordingly, a POSITA would not have been motivated to improve alleged data latency issues in Herzog, much less looked to Spivey for a solution. (EX-2001, EX-2038, ¶¶30, 33-34.)

As another example, Petitioner’s motivation to combine argument relies in part on the following statement by its expert, Dr. Wicker: “[c]ombining certain portions of Herzog and Spivey would have been obvious because doing so would require only the simple substitution of known elements for another to obtain predictable results.” (Petition, 64-65; EX-1001, ¶131.) As demonstrated herein, however the Spivey disclosure does not concern video delivery; it concerns the “immediate” push of data to a subscribed device. (§III.B, *supra*.) Therefore, at a fundamental level, whatever server is plucked from Spivey’s disclosure to implement the Herzog origin server as, the resulting combination would not be operable to transmit an audio/video stream and meta-data stream in the manner contemplated by Herzog, because there is nothing in Spivey concerning how to implement the Spivey teachings with video content delivery. (EX-2001, §V.B.)

Further, Petitioner fails to establish (or even allege) that Ellis remedies any of the foregoing deficiencies noted above with respect to combining Spivey’s and Herzog’s teachings. (Petition, 65-66.) Petitioner merely introduces Ellis in order to introduce the concept of “Providing Users with Sports Score and Sports

Commentary Information Using Separate Communication Channels,” which presumably, based on Petitioner’s use of Ellis, neither Herzog nor Spivey discloses. Nevertheless, implementing Spivey’s MQS into (or as) Herzog’s “origin server” would render the combination inoperable (as demonstrated herein), and Ellis’s alleged general discussion of the provision of “sports score” information does not change this result. (EX-2001, ¶238.)

(3) Petitioner relies on impermissible hindsight bias.

Absent a clearly articulated reason to combine Herzog with Spivey and Ellis, Petitioner appears to rely exclusively on impermissible hindsight to stitch together unrelated elements of the prior art in a misguided attempt to reconstruct the invention addressed by the ’697 patent. (EX-2001, ¶¶288-289.) In this regard, the Petitioner divorces prior art elements from their disclosed context and uses the ’697 patent as a guidepost for reconstructing the claimed invention.

As one example of Petitioner’s reliance on hindsight rationale, the Petition uses the claims of the ’697 patent as a guidepost for seeking to fill in certain missing details of Herzog “backend” architecture. Absent reference to the ’697 patent, there would be no reason to improve the *data latency* of Herzog, where the total latency of the Herzog system is clearly defined by transmission and processing factors related to the video/audio feed, and which Herzog mitigates with its timestamp synchronization techniques. (EX-2038, ¶30.)

Petitioner fails to articulate a sufficient rationale to combine Herzog and Spivey, and therefore, Petitioner fails to show that its Herzog/Spivey/Ellis combination renders obvious independent claims 19, 23, and 27. (EX-2001, ¶¶297-300.)

2. Dependent Claims 20-22, 24-25 and 28-30 are patentable

Because Petitioner has failed to establish that independent claims 19, 23 and 27 are unpatentable, Petitioner cannot meet its burden for the challenged dependent claims 20-22, 24-25 and 28-30, which each depend, directly or indirectly, from claims 19, 23 and/or 27. *Twinstrand Biosciences, Inc.*, IPR2022-01115, Paper 14, *19.

a) Dependent Claim 21

As stated above, dependent claim 21 is patentable at least because of its dependence on independent claim 19. Petitioner's arguments regarding dependent claim 21 are deficient for additional reasons. Ground 2—just like Ground 1—relies on Spivey's "topic queues" as allegedly "disclos[ing] a first/second chat/system event socket corresponding to the first/second chat information regarding the first/second live sporting event video-based commentary." (Petition, 80-82.) For the reasons stated above in relation to Ground 1, Spivey—alone or in combination with the prior art—does not teach or render obvious the claimed "first/second chat/system event socket." (§IV.A.2, *supra*.)

Accordingly, Herzog in view of Spivey and Ellis does not render obvious dependent claim 21.

V. OBJECTIVE INDICIA SHOW THAT THE CLAIMS WOULD NOT HAVE BEEN OBVIOUS

When assessing obviousness of the claimed invention, objective indicia of nonobviousness must be considered. *In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996). These indicia constitute “the most probative evidence of nonobviousness,” which “are crucial in avoiding the trap of hindsight when reviewing, what otherwise seems like, a combination of known elements.” *Leo Pharm. Products, Ltd. v. Rea*, 726 F.3d 1346, 1358 (Fed. Cir. 2013). Such evidence “may often establish that an invention appearing to have been obvious in light of the prior art was not.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012).

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.” *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33, 32 (PTAB Jan. 24, 2020) (precedential). Even where this presumption is not established, nexus may be shown where “the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention.” *Id.* at 33.

A. The Claimed Invention Satisfied a Long-Felt Need.

Objective evidence that there was a long-recognized problem without a solution demonstrates long-felt need. *See Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988).

Prior to the claimed invention, conventional video streaming systems hard-embedded event information, which causes processing overhead and limited licensing and rights. (EX-1006, 28:39-59; EX-2001, ¶¶313-315.) Another issue relates to viewer latency—the delay between when a first user generates a live video stream and when a second user receives it for viewing. (EX-1006, 2:22-47; EX-2001, ¶¶313-315.) The industry recognized that “most people aren’t aware that when they’re watching a live stream on platforms like FaceBook or Periscope, they can be anywhere from 10-30 seconds delayed.” (EX-2006; *see also* EX-1006, 2:22-47.) Furthermore, conventional video streaming systems struggled to deliver low-latency copies of high-quality live streams and flexible access for various viewer types. (EX-1006, 2:34-47.)

The claimed invention satisfied the long-felt need for an innovative system that allows broadcasters to deliver synchronized, low-latency video and audio content with scalable, flexible access for different types of viewers and service qualities (EX-1006, 2:31-47; §§II.A-B, *supra*; EX-2001, ¶¶313-315; EX-2007; EX-2008.)

Specifically, the claimed invention enables enhanced live video streaming using a novel one-to-many socket architecture, allowing multiple viewer devices to receive synchronized, contextually matched event information from a single socket server. (EX-1006, 19:64-20:11; 21:37-52; 22:7-39; 22:53-67; 27:5-27; 29:25-43; 53:21-37; EX-2001, ¶¶316-317.)

To this end, the patented technologies use a web server which may provide viewers with an identifier of the particular event. (EX-1006, 21:53-22:6; 23:20-45.) Viewers who are interested in watching the live stream of the event can then use the received identifier to connect to the dedicated server. (*Id.*) In response, the socket server transmits the event information associated with the particular event back to the viewers via an event information channel through the dedicated socket. (*Id.*)

Furthermore, the patented technologies use of a control server to periodically retrieve live sporting event information, addressed the challenge of displaying event information in a synchronized, low-latency manner across multiple viewers. (EX-1006, 21:37-52.) The control server's single point of entry for event information ensures all viewers and broadcasters receive synchronized updates, minimizing latency and synchronization issues. (*Id.*)

In sum, the inventors were the first to recognize that incorporating dedicated socket servers, web servers, and control servers within a livestreaming server architecture could improve network functionality, enabling scalable, low-latency

viewing of live events and commentary by many viewers. The patented claims expressly contemplate and claim the means for doing so—*i.e.*, the system comprising “*a control server to periodically retrieve*” (*e.g.*, claim 19) and “*at least one socket server communicatively coupled to the control server*” (*e.g.*, claim 19).

B. The Claimed Invention Received Industry Praise

Industry praise for an invention is evidence of nonobviousness where the industry praise is linked to the claimed invention. Patent Owner implemented its patented technologies in its video-streaming products, including a consumer-focused social network (SportsCastr) and a B2B software solution for enterprises, sports media, affiliates, and betting operators (PANDA Studio).

Over the years, Patent Owner has earned numerous accolades such being a finalist in Sports Tech Tokyo, the Yahoo! Sports Technology Awards, and Sports Business Journal’s Best in Sports Technology. (EX-2009.) Its technology and platform have been featured in dozens of publications and TV broadcasts, including CNBC, The Washington Post, Yahoo, Forbes, ESPN, FOX Sports, SBNation, Bleacher Report, and many more. (E.g., EX-2010; EX-2009.)

Simply put, the claimed invention empowered everyday sports fans to become professional broadcasters. Unlike conventional graphics that are hard-embedded into the live streams of a sports broadcast, the claimed invention allows graphics to be generated by the client device itself; thereby providing sports fans with the capability

to overlay streams with real-time enhancements. (EX-1006, 28:41-59.) Former NBA commissioner David Stern opined in an article that states “SportsCastr.Live will allow a budding sportscaster to overlay streams carrying enhancements that update in real time (e.g., live betting lines) and lend a professional look to the presentation.” (EX-2007.) “What sets SportsCastr apart from the media companies that dominate the industry like ESPN, Fox Sports, NBCSN, and CBS Sports, is the unique ability for a user to act as a color commentator in a studio like setting.” (EX-2008.)

The benefits and advantages highlighted by the industry result 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 plurality of copies of a first broadcaster’s live stream of digital content including first video-based commentary*” (*e.g.*, Claim 19).

C. The Claimed Invention Was Praised and Copied By Petitioner

Moreover, Petitioner’s own copying and praise of the claimed invention are further evidence that the challenged claims are not obvious. As shown below, Petitioner has been aware of and praised Patent Owner’s patented products and technology since 2018.

On Feb 24, 2018, 3:10 PM -0500, Ben Turner <ben.turner@geniussports.com>, wrote:

Hey Kevin,

Thanks for your time yesterday. It is great to see what you guys are doing with SportsCastr. Let's organise a follow up call for when I am back in Australia and I will have a think about some potential intro's that might be of interest.

(EX-2016 (annotated)).

On Mon, 7 May 2018 at 7:15 am, Ben Turner <ben.turner@geniussports.com> wrote:

Hi Kevin, Andrew and Luke,

I wanted to introduce you all to each other. As I travel around I find many great companies working in the sports digital/tech space and like to make introductions where synergies may exist. So...

Kevin April (CEO) and Andrew Schupak (CFO) founded Sportscastr - <https://sportscastr.com/> - they are based in NY and doing amazing work around sports broadcast with social commentators, graphics and real time chat.

(EX-2017 (annotated)).

Petitioner gained knowledge of Patent Owner's products under the guise of exploring partnerships, but in reality, was developing its own products by copying Patent Owner's patented products. (EX-2001, ¶320; EX-2018). A party may prove copying by showing that an accused copier had "access to the patented product combined with substantial similarity to the patented product." *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010). This copying shows that the challenged claims are not obvious. *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*,

344 F.3d 1186, 1196 (Fed. Cir. 2003) (finding that evidence of a competitor responding to the introduction of the patent owner’s product with an infringing product indicated copying, which supported nonobviousness).

D. Patent Owner’s Patented Product Enjoys Substantial Commercial Success.

A patentee demonstrates commercial success by showing significant sales of the patented product in a relevant market and nexus between the patented invention and the commercial success. *Ormco Corp. v. Align Technology, Inc.*, 463 F.3d 1299, 1311-12 (Fed. Cir. 2006). “Advertising the benefits of the claimed invention links the invention to commercial success.” *Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1369 (Fed. Cir. 2012). Also, statements that a product was successful due to the patented features support a finding of nexus. *See Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 711 F.3d 1348, 1368 (Fed. Cir. 2013).

Patent Owner implemented the claimed invention of the ’697 patent to meet the growing demand for improved user interactions with livestream broadcasters.

The claimed invention of client-side rendering enables animations and graphics in livestream content to be user-interactive. (EX-1006, 29:17-43; EX-2001, ¶317.) In the context of live events where a broadcaster provides video-based commentary, event information is sent to both broadcaster and viewer devices via a socket-based “event information channel,” separate from the “video channel”

carrying the live commentary stream. (*Id.*) By using one or more sockets specifically for event information, separate from the live stream, user-interactive features are enabled. (*Id.*)

This user-interactive feature has revolutionized the industry, as recognized by third parties. “The innovative sports tech product allows users and viewers to interact through an enhanced second screen experience and via social media channels...[the platform] is fully interactive and immersive because of the various clicks on the screen and the social media commentary opportunities.” (EX-2008.) On an interview with CNBC, New York Giants Safety Landon Collins stated that the claimed invention embodied in SportsCastr allowed him to interact with fans: “I can tell you what happened, why this play was successful or why this person got beat, from the perspective of a defensive player.” (EX-2011.)

Patent Owner advertised its implementation of the claimed invention and its benefits of low latency, live interaction with audience, and studio quality tools to customers:

for Publishers

Take your coverage to the next level with immersive live video, seamlessly integrated into your website or app with just a few clicks. SportsCastr’s patented streaming platform is custom-tailored for the unique needs of sports publishers and offers new ways to increase engagement, grow your reach and monetize your audience.

(EX-2012.)

The SocketVision Advantage

PANDA's technology is ushering in the next step in live online betting on sporting events. Using SocketVision, a sports betting platform can display live and on-demand video, enhanced with its real-time data, on any media publisher's site. Viewers can place bets using contextually matched, interactive data without leaving a publisher's website or app. Unlike traditional non-interactive solutions that require video streams to be modified – which introduces latency, and which can cause licensing issues – video streams enhanced with SocketVision are unmodified; instead, the updates are sent to viewers via a secondary (and persistent) communications channel. This approach allows for greater opportunities for clients to enhance broadcasts with associated real-time information (for example, related live betting) that is both actionable and scalable.

(EX-2013.)

PATENTED TECHNOLOGY

Delight & activate viewers with PANDA's SocketVision technology. SocketVision offers a new way to experience broadcasts — interactively. SocketVision is patent-protected technology developed by PANDA since 2016.

PANDA's patents include:

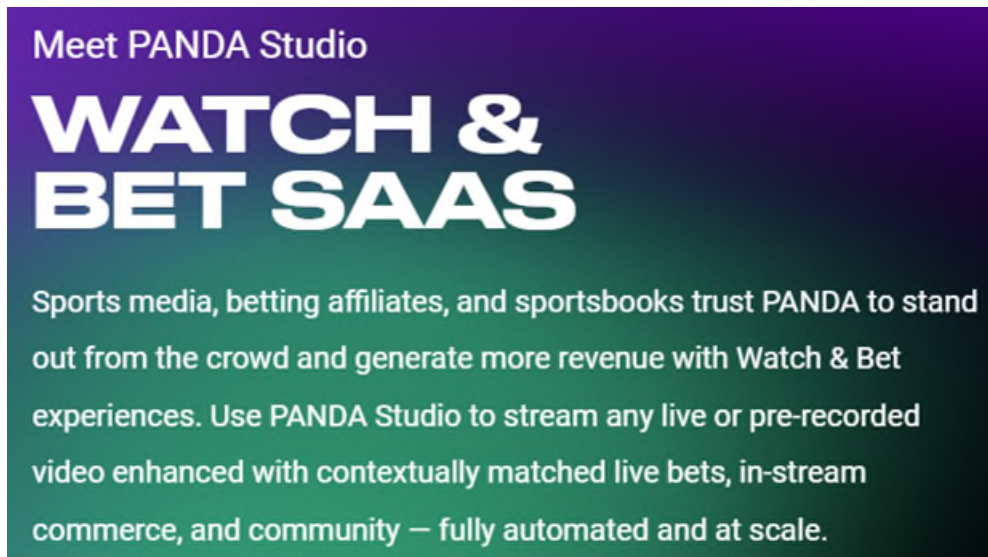
- US 10,425,697
- US 10,805,687
- US 11,039,218
- US 11,356,742
- US 11,770,591

(EX-2013.)

Moreover, the extensive promotion by Patent Owner of the improved user experience and revenue generation underscores how the patented technology drives demand and commercial success of the patented products:

The screenshot displays a live stream interface for SportsCastr. On the left, a dark panel contains the text "Earn Money Multiple Revenue Streams" in white and light gray. Below this, a paragraph describes the platform's features: "SportsCastr comes fully-loaded with features that let you convert your audience into real cash. These include frictionless credit card donations, video ads, subscriptions, and the ability for your viewers to send you virtual gifts and tips. You can even earn revenue from referring talented new SportsCastrs to join the community." At the bottom of this panel is a "Contact Us" button. On the right, a video feed shows a male host. Overlaid on the video is a poll titled "Who will win by decision?" with two options: "-115 I. Adewale" and "+120 A. Pereira". Below the poll is the "BAMBOO SPORTSBOOK" logo. At the bottom of the video feed, there is a "Live Now" button and a viewer count of "9,447".

(EX-2014.)



(EX-2015.)

Accordingly, Patent Owner's SportsCastr and PANDA Studio, which implemented the patented method, received widespread industry praise as a direct result of the claimed invention. In addition, others, including Petitioner, have copied and implemented this technology into their own products, which in turn have obtained commercial success because of this technology. The evidence supporting these secondary considerations constitutes objective evidence that the claims are nonobvious and confirms Petitioner's reliance on hindsight in constructing its deficient grounds.

VI. CONCLUSION

For all the reasons stated herein, Petitioner has failed to establish that the challenged claims of the '697 patent are unpatentable. Patent Owner respectfully

requests the Board find the challenged claims patentable over the grounds in the Petition.

Dated: May 30, 2025

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CERTIFICATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER RESPONSE and EXHIBITS** specified in 37 C.F.R. § 42.24 have 13,999 words, in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24.

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CERTIFICATE OF SERVICE

I certify that I caused to be served a true and correct copy of the foregoing:
PATENT OWNER RESPONSE and EXHIBITS were served by filing this document through the Patent Trial and Appeal Case Tracking System (P-TACTS) on May 30, 2025, in its entirety on the following:

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