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.

Case IPR2024-01309

Patent No. 10,425,697

SUPPLEMENTAL DECLARATION OF AVIEL RUBIN, Ph.D.
IN SUPPORT OF PATENT OWNER'S RESPONSE TO PETITION

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EXHIBIT LIST

Exhibit	Description
EX-2001	Declaration of Aviel Rubin, Ph.D.
EX-2002	*Curriculum vitae* 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/tux-edo/tux80/atmi/intbas3.htm
EX-2022	Peng, Gang. "CDN: Content distribution network." arXiv pre-print cs/0411069 (2004) https://arxiv.org/pdf/cs/0411069
EX-2023	The History of Streaming Media. https://boyetblog.s3.amazo-naws.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.veris-kope.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 4th 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	*Proceedings of the 25th ACM workshop on network and operating systems support for digital audio and video*, 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

I, Aviel Rubin, Ph.D., declare as follows:

1. I have been engaged on behalf of SportsCastr Inc. (d/b/a PANDA Interactive) ("Patent Owner"), to provide this Supplemental Declaration concerning the technical subject matter relevant to the petition for *Inter Partes* Review 2024-01309 ("Petition") of U.S. Patent 10,425,697 ("the '697 patent").

2. I am over 18 years of age. I have personal knowledge of the facts stated in this Declaration and could testify competently to them if asked to do so.

3. I have reviewed and am familiar with the specification and the claims of the '697 patent. In general, I will cite to the specification of a United States patent using the following formats: (Exhibit No., Col:Line Number(s)) or (Exhibit No., Paragraph Number(s)). For example, the citation (EX-1001, 1:1–10) points to the '697 patent specification at column 1, lines 1–10. Also, for convenience, I use italics to denote limitations from the challenged claims.

4. All the opinions in this Supplemental Declaration are based on the documents I reviewed and my knowledge, experience, training and professional judgment. In forming the opinions expressed in this Supplemental Declaration, I reviewed the Petition for *Inter Partes* Review of U.S. Patent No. 10,425,697 and supporting exhibits, Patent Owner's Preliminary Response and supporting exhibits, as well as the Board's Institution Decision in this and related IPRs.

5. I am the same Aviel Rubin, Ph.D. who submitted a Declaration as Exhibit 2001 in support of the Patent Owner Preliminary Response submitted in this IPR, which I will refer to as the "POPR Declaration" or EX-2001.

6. For purposes of this Supplemental Declaration, I fully incorporate by reference my entire POPR Declaration, including all qualifications, legal principles, background, state of the art, and opinions presented in that POPR Declaration.

7. In addition to my POPR Declaration, I have been asked to provide the following supplemental opinions.

I. THE CITED PRIOR ART DOES NOT DISCLOSE OR RENDER OBVIOUS ALL LIMITATIONS OF INDEPENDENT CLAIMS 19, 23, AND 27

8. As noted in my POPR Declaration (EX-2001), Petitioner and Dr. Wicker allege that two different combinations—Ellis in view of Spivey and Herzog in view of Spivey—each render obvious independent claims 19, 23, and 27. I disagree with the arguments in the Petition, the opinions set forth by Dr. Wicker, and the Institution Decision for the reasons I discussed in my POPR Declaration, and further for the reasons that I discuss in further detail below.

A. Ground 1A Does Not Disclose Or Render Obvious All Limitations of Independent Claims 19, 23, and 27.

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

9. With reference to claim limitations 19.8, 23.3, and 27.3 of the '697 patent, Petitioner's arguments hinge on its implementation of Spivey's teachings

within Ellis. Specifically, Petitioner and Dr. Wicker assert that a POSITA would have implemented Spivey's message queue server (comprising the message queue server device and live data server device) in place of Ellis's supplemental content source. (EX-1001, ¶106-111.) Dr. Wicker alleges that Spivey discloses a "websocket connection" between the message queue server device's topic queue (the alleged *"event socket")* and client devices, allegedly establishing a "live data connection" (the alleged *"channel")* between the message queue server device's topic queue and the viewer device. (EX-1001, ¶¶105, 109-110, 172.)

10. Spivey only discloses a "websocket connection" as occurring between the client devices and the live data access server 130—i.e., a server which Petitioner and Dr. Wicker have not included in the proposed combination of teachings. (EX-1017, ¶¶43, 61, 74, 92; *see also* EX-2001, Section VI.A.1.) Spivey only discloses the "live data connection" between the client devices and the live data access server, which is not included in Petitioner's proposed combination of teachings. (*Id*.) Spivey does not disclose a connection between the message queue server device and client devices and would not, therefore motivate or teach a POSITA to implement the message queue server device in the way that Petitioner proposes. (EX-2001, Sections VI.A.1.)

11. Indeed, Spivey does not describe the MQSD as capable of connection, e.g., via "websocket connection," with individual client devices. (EX-1017, ¶¶45,

61.) Spivey only describes the LDAS as including the necessary components to support connection of a server with multiple individual client devices using a websocket connection. (EX-1017, ¶¶45, 53-54.) In particular, Spivey describes the LDAS as including, e.g., an "interface component 530." (EX-1017, ¶59.) The interface component, according to Spivey:

> provide[s] user interface elements or supporting data for a client-side user interface. Interface 530 may generally provide an interface to allow an operator to request and authenticate a connection to live data access server 510, to select one or more topics relating to live events for subscription, and to receive and display the live data as it is received by message queue server 120.

(EX-1017, ¶63.) That is, Spivey depicts example "user interfaces" in FIGS. 8-10, which depict, collectively, the process by which a user, via a client device, accesses the data via the LDAS. (EX-1017, ¶¶63, 81-90.)

12. Further, Spivey only describes the LDAS as including, e.g., a "subscription component 540." (EX-1017, ¶59, FIG. 5.) The subscription component, according to Spivey:

> manage[s] subscriptions to topics for currently connected clients. For example, subscription component 540 may receive the selected topic(s) from interface component 530 for a particular connected client. Subscription component 540 may then communicate with message queue server 120 to subscribe to the topic queues that correspond to the selected topics.

(EX-1017, ¶64.) Accordingly, the subscription component facilitates a flow of messages (data) to subscribed client devices. (*Id*.) A client device must first access

the LDAS, and through the LDAS, and specifically, the "subscription component," subscribed client device may receive data classified according to various "topics." (*Id*.)

13. Spivey never discusses the MSQ (e.g., MQS 120 of FIG. 1) or the two-server implementation of the MQS (e.g., the MQSD 410 and the LDSD 450 of FIG. 4) as including either the "interface component" or the "subscription component." (EX-1017, ¶¶ 34-35, 53-58, FIG. 1, 4.) It is my opinion that the interface component and the subscription component are necessary components to facilitate the connection of multiple individual clients to the flow of data described in Spivey. Further, it is my opinion Spivey does not support any of its message queue servers as including the interface component or the subscription component. (EX-2001, Section VI.A.1.) Rather, it is my opinion that the message queue servers, according to Spivey, rely on the LDAS, and the LDAS's interface component and subscription component to facilitate the message flow described in Spivey. (EX-2001, Section VI.A.1.)

14. Dr. Wicker selectively quotes Spivey to suggest that "client devices 'request a live data connection' ***with the MQSD [message queue server device]*** by 'select[ing] or enter[ing] the address or connection information ***to a particular' MQSD***." (EX-1001, ¶172 (quoting EX-1017, ¶¶81-82) (emphasis added).) However, Spivey ¶¶81-82 do not support Dr. Wicker's statement. Dr. Wicker's

statement is inconsistent with evidence in so far as Spivey ¶¶81-82 describe user interfaces specifically for the purpose of allowing an end client device to access data via the LDAS. Spivey ¶81 could not be more clear:

> FIG. 8 illustrates an embodiment of a user interface (UI) 800. UI 800 may be presented by live data app 210. UI 800 may include various UI elements that allow an operator 108 of a client device 110 to **request a live data connection with a live data access server**.

(EX-1017, ¶81 (emphasis added).)

15. Indeed, all of the interfaces shown in Spivey pertain to a client application (e.g., such as that executing on a mobile phone) that accessing a flow of data by requesting a "live data connection" with the LDAS. (EX-1017, ¶81.) Petitioner's argument rests on the notion that some embodiments of Spivey do not require a LDAS. (Petition, 39-41; EX-1001, ¶¶99, 109-112.) For example, Dr. Wicker states: "one embodiment, the message queue server 120 communicates directly with client devices (110-1…110-a) without the use of a live data access server." (EX-1001, ¶99.) Dr. Wicker's position is inconsistent with evidence that Spivey explicitly requires an intervening LDAS to facilitate a connection, such as a websocket connection, between the MQSD and individual client devices. (EX-2001, Section VI.A.1.)

16. Petitioner and Dr. Wicker's position—that the LDAS is optional—is based on their proposition that the operating environment 400 shown in Spivey FIG.

4 can be divorced from the balance of the teachings of Spivey. (Petition, 39-41; EX-1001, ¶¶99, 109-112.) To the contrary, Spivey explicitly describes the operating environment 400 as a part of the system 100 of FIG. 1. (EX-1017, FIG. 1, 4.) FIG. 4 shows a MQSD and LDAS that may essentially "plug in" as the more generic MQS shown in Spivey FIG. 1. (EX-1017, ¶¶ 34-35, 53-58, FIG. 1, 4.) According to Spivey: "As 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.) Thus, as a threshold matter, the operating environment 400 of FIG. 4 should be understood in the context of the overall Spivey system architecture shown in FIG. 1. (EX-1017, ¶¶ 34-35, 53-58, FIG. 1, 4.) Spivey FIG. 1 shows high level system architecture, and FIG. 4 provides addition details pertaining to the MQS shown in FIG. 1. (EX-1017, ¶¶ 34-35, 53-58, FIG. 1, 4.)

17. For purposes of discussion, the operating environment 400 is reproduced below:

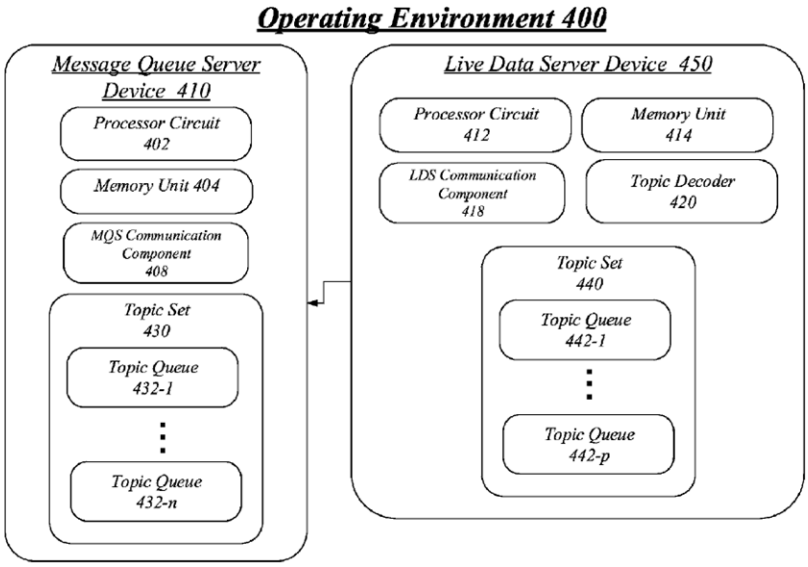

FIG. 4

(EX-1017, FIG. 4.)

18. Absent from FIG. 4 is, e.g., the "interface component" and/or the "subscription component." (EX-1017, FIG. 4.) Spivey does not disclose any component or functionality of the MQSD and/or the LDSD as being capable of subscribing and connecting to, e.g., via a websocket connection, multiple individual client devices. (EX-1017, ¶¶45, 53, 59-64.) Spivey only describes the LDAS as including this functionality, and the required subscription and interface components. (EX-1017, ¶¶38-39, 59-64.) The MQSD and the LDSD have the ability to communicate with individual end clients, according to Spivey, only via the intervening LDAS. (EX-1017, ¶¶38-39, 59-64.) The MQSD and LDSD may "plug in" as the MQS, and so FIG. 4 is understood only in the context of Spivey high level system 100 architecture, reproduced below:

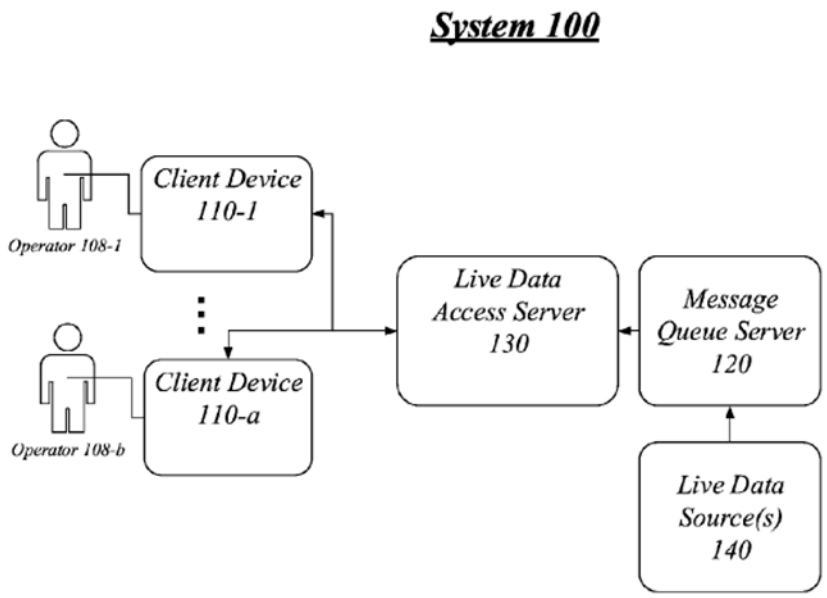

FIG. 1

(EX-1017, FIG. 1.)

19. Accordingly, it is my opinion that Spivey describes the client devices receiving data from the operating environment 400 (e.g., including the MQSD and LDSD) via the LDAS shown in FIG. 1.

20. Not only does Spivey describe the operating 400 only in terms of the system 100 and associated LDAS, but Spivey also never describes the MQSD as having the appropriate functionality to support connections, e.g., via websocket, to multiple individual client devices. (EX-1017, ¶¶45, 53-54, 58.) For example, Spivey never describe the MQSD as a communication endpoint assigned with a publicly-accessible URL or address. (EX-1017, ¶¶45, 53-54, 58.) Nor does Spivey describe the MQSD as a communication endpoint designed to handle real-time

access from a potentially large number of individual clients. (EX-1017, ¶¶45, 53-54, 58.) Nor does Spivey describe the MQSD as a communication endpoint capable of pushing its data packets to multiple individual clients. (EX-1017, ¶¶45, 53-54, 58.) It is my opinion that Spivey does not disclose the MQSD as having the aforementioned functionalities of a communication endpoint because Spivey requires the end client device to "request a live data connection" through the LDAS in order to receive data from the MQSD, which as such, means that Spivey requires the LDAS to enable its message flow.

21. Petitioner and Dr. Wicker's reliance on Spivey ¶36 does not change my conclusion. Spivey ¶36 states, in relevant part, "**[i]n some embodiments**, message queue server 120 is not accessible to clients over the network directly." (EX-1017, ¶36 (emphasis added).) However, absent any technical discussion in Spivey of other embodiments, e.g., technical components and associated functionality, Spivey does not suggest other embodiment in which the message queue server is accessible to client over the network directly. (*supra*.) Indeed, the Spivey reference as a whole described the opposite—client devices require the intervening LDAS to access the MQSD—and as such, in my view, the phrase "in some embodiments" would not suggest an alternative technical construct, particularly in view of Spivey's express teachings to the contrary.

22. As a threshold matter, according to Spivey, client devices are only those "subscribe[d] to and [that] receive live data via live data access server. (EX-1017, ¶39.) Spivey ¶39 contradicts the notion that client devices subscribe to the MQSD.

23. Rather, the only component described in Spivey as permitting communication from the MQSD is the "MQS communication component." (EX-1017, ¶54.) For example, the MQSD may communication with the MQS communication component 408 (shown in FIG. 4, reproduced below).

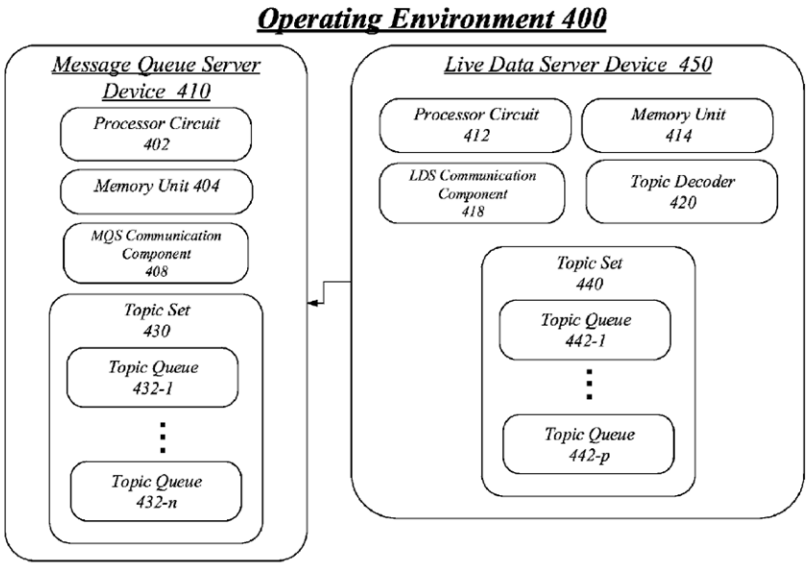

FIG. 4

(EX-1017, FIG. 4.) Spivey describes the MQS communication component 408 as "analogous . . .to . . . MQS communication component 308." (EX-1017, ¶54.) The MQS communication component 308 (shown in FIG. 3, reproduced below) 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.)

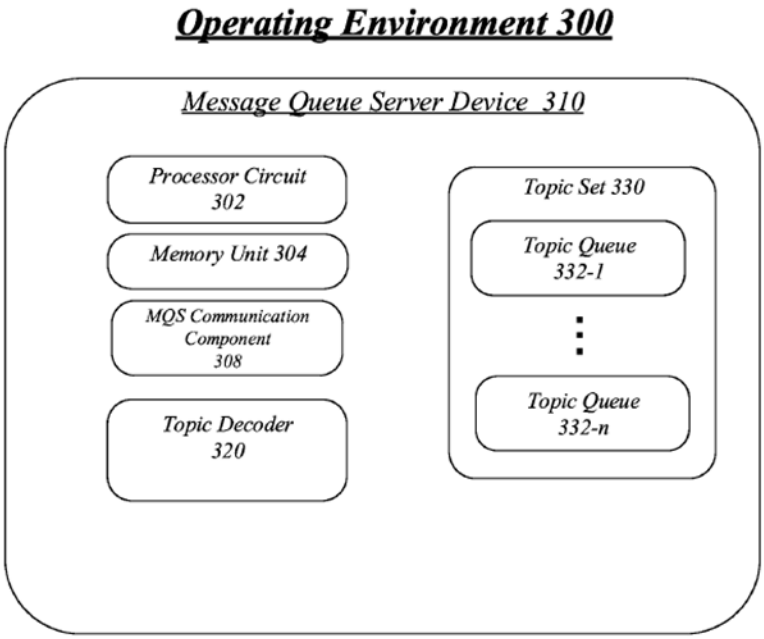

FIG. 3

(EX-1017, FIG. 3). Accordingly, the MQSD—the very server component central to Petitioner and Dr. Wicker's argument—is only described in Spivey as being capable of communicating with "a live data access server."

24. The topic flow central to Spivey's teachings (EX-2001, ¶234) applies to the various message queue servers discussed in Spivey. As I explained in detail herein, the MQSD is one server component of a two-part server environment (the MQSD and LDSD of FIG. 4) that essentially "plug in" as the MQS shown in Spivey FIG. 1. (EX-2001, Section VI.A.1.) Spivey discusses a certain "RABBITMQ" as one implementation of the MQSD. (EX-1017, ¶58.) It is my opinion that the RABBITMQ discussed in Spivey ¶58 would function according to the principles set forth in relation to Spivey FIGS. 1 and 4, and indeed, all of Spivey, in so far as the

RABBITMQ would require the LDAS to facilitate connection to numerous individual client devices, according to Spivey. Specifically, Spivey never describes the RABBITMQ as being capable of facilitating a connection, e.g., via a websocket or otherwise, with individual clients, the technical disclosure of Spivey does not support an alternative conclusion. (EX-1017, ¶58.) Rather, Spivey contemplates running the RABBITMQ on the MQSD itself, thereby serving to connect the LDSD and the LDAS. As such, the Spivey disclosure does not support the client devices being connected to the RABBITMQ.

2. ***Regardless of the MQSD's transmission destination, Petitioner fails to show that Spivey's topic queues are "sockets."***

25. Petitioner's and Dr. Wicker's argument for equating "topic queues" with "uniquely addressable communication endpoints" rests on Spivey's FIG. 9. (Petition, 39-41; EX-1001, ¶¶171-172.) However, Spivey's FIG. 9 depicts a user interface ("UI 900") as one of a three-part series of user interfaces (e.g., UI 800, 900, 1000 of FIGS. 8-10, respectively) that collectively depicts interfaces for allowing the end user client to receive data from topic queue, expressly via the LDAS and the LDAS's interface component 530. (EX-1017, ¶81-88.) Dr. Wicker's reliance on Spivey FIG. 9 for demonstrating uniquely addressable communication endpoints is contrary to evidence that FIG. 9 depicts an interface between the client device and the LDAS. (EX-1017, FIG. 9.)

26. Taking the interfaces in turn, Spivey's FIG. 8 depicts the first user interface in the three-part sequence. (EX-1017, ¶¶81-88.) FIG. 8 particularly shows the visual interface on a client device (e.g., a mobile device) when said client device attempts to log on or otherwise "request a live data connection with a live data access server." (EX-1017, ¶¶81-82.) Spivey describes allowing a client device to request this live data connection using the Live Data Access Server Address 830. (EX-1017, ¶82.) Regardless of whether the Live Data Access Server Address may "resemble a uniform resource locator," the Live Data Access Server Address is used in Spivey only to connect the client device to the LDAS. (EX-1017, ¶82.) The Live Data Access Server Address unequivocally is not used to connect the client device to the MQSD (which sits behind the LDAS), and Spivey does not support such conclusion. (EX-1017, ¶55, FIG. 4.) Accordingly, Petitioner's statement "VCDs 'request a live data connection' with the MQSD" (Petition, 40 (citing EX-1017, ¶¶81-82)) is against the evidence that Spivey ¶¶81-82 only describes and only contemplates connecting the VCSs to the LDAS.

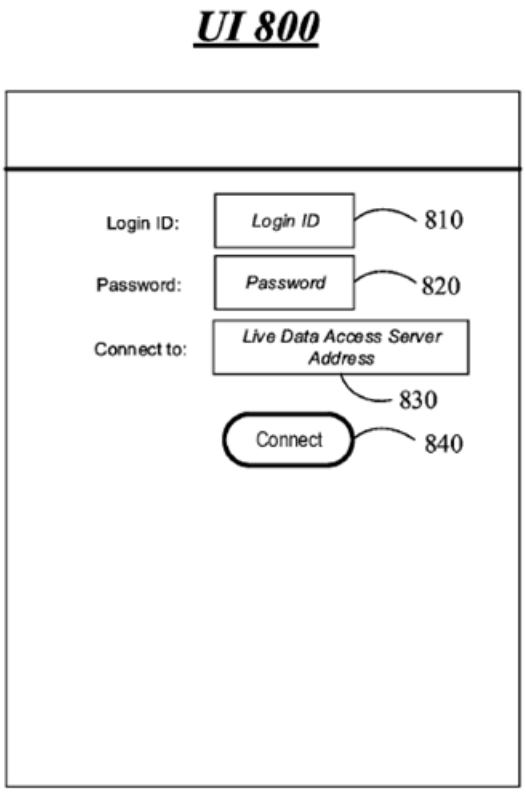

FIG. 8

(EX-1017, FIG. 8.)

27. Turning to the interface of FIG. 9, FIG. 9 particularly shows the visual interface on a client device (e.g., a mobile device) when said client device attempts to indicate to the LDAS that specific data said client device desires to receive. (EX-1017, ¶84, FIG. 9.) The client is permitted to indicate to the LDAS which "topics" it desires to receive by selecting on the UI 900, which topics it desires to receive. (EX-1017, ¶84.) The topics are indicated by text strings, such as "gamecenter.nfl.ravenssteelers," as indicated in FIG. 9 (reproduced below):

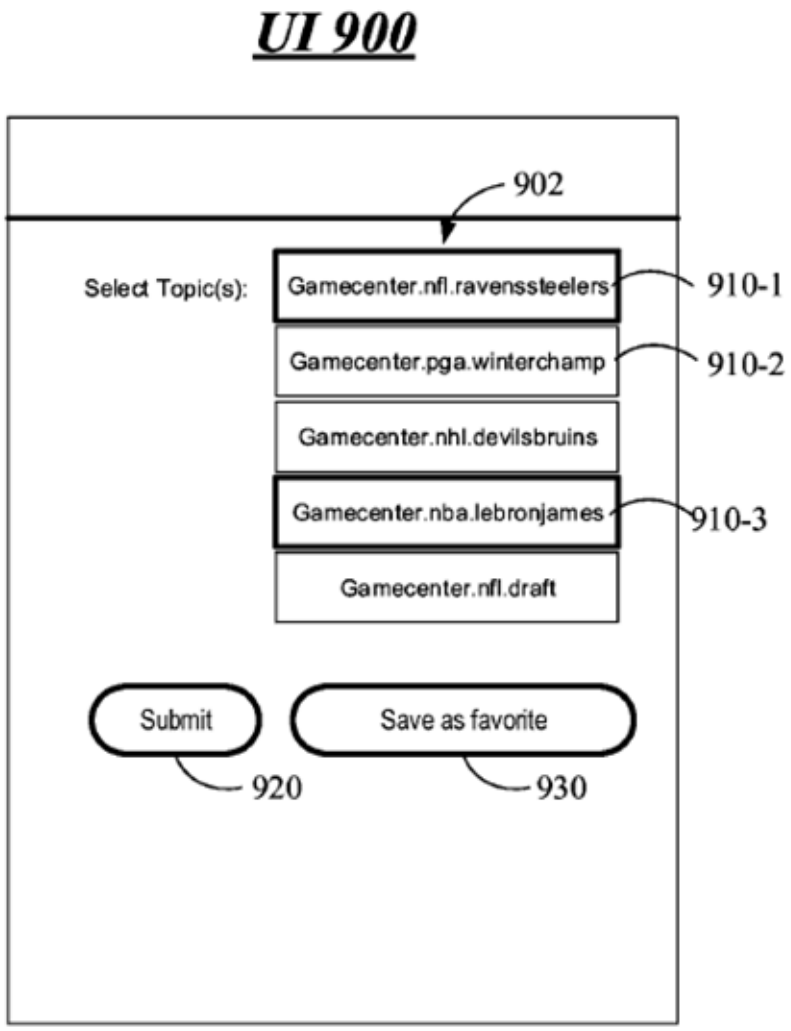

FIG. 9

(EX-1017, FIG. 9.) The text strings themselves are not URLs. (EX-1017, ¶84.) Further, text strings are not used in any URL (or any other address) in Spivey. (EX-1017, ¶¶84-86.) A text string or "topic label" is merely that, "a label," such a label providing an indication of the content of a certain flow of data. A topic label in itself does not suggest a unique connection, nor does it describe a specific technical functionality that would allow a client device to receive said data. A label, is just a

label. Accordingly, without more, Spivey does not suggest that the label shown in FIG. 9 are evidence of uniquely addressable communication endpoints. (EX-1017, ¶¶84-87.) Indeed, Spivey suggest the opposite—that the MQSD is only accessible through the LDAS. (E.g., EX-2001, Section VI.A.1.)

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

28. Notably, Petitioner's diagram (Petition, 21) does not include any component to support the relay of data between the MQSD (of Spivey) and the user equipment (of Ellis). Spivey never describes the MQSD operating in isolation or apart from the LDAS. (EX-2001, Section VI.A.2.) Indeed, the MQSD shown in Petitioner's diagram does not include any component described in Spivey as being capable of transmitting information to multiple individual client devices. (EX-2001, Section VI.A.2.) The only component shown in Petitioner's diagram that is capable of transmitting information whatsoever from the MQSD, is the "MQS Communication Component 408." (*Compare* Petition, 21 *with* EX-1017, ¶54, FIG. 4.) However, Spivey only describes the MQS Communication component as being capable of transmitting information to a LDAS, which is an intervening server between the MQSD and any individual client devices. (EX-2001, Section VI.A.2.) Accordingly, Petitioner's diagram suffers from a fundamental problem insofar as the diagram does not provide any support for a transmission mechanism of data from the MQSD to the user equipment.

29. Petitioner and Dr. Wicker attempt to sidestep the apparent inoperability of the Petitioner's diagram, by illustrating multiple "communication channels" 152-1, 152-n in this diagram. (Petition, 21; EX-1001, ¶¶52.) However the notion of multiple "communication channels" stemming from the MQSD is a concept entirely of Petitioner's and Dr. Wicker's own making. For example, Ellis never describes multiple paths. (*See generally* EX-1016.) And Spivey never describes multiple connections from the MQSD. (EX-1017, ¶¶45, 53-58, FIG. 4.) Petitioner's inclusion of "152-1, 152-n" attempts to suggest that the MQSD is capable of handling communication to multiple individual clients. However, Spivey does not describe the MQSD as having this functionality. (EX-2001, Section VI.A.2.) Spivey MQSD requires the intervening LDAS in order to send data to individual clients. (*Id*.) Accordingly, despite Petitioner drawing additional communication channels in its diagram, the MQSD that Petitioner adopts from Spivey's disclosure would not support these multiple communication channels. In this regard, Petitioner's combination would not be operable to transmit data to user equipment not only because the MQSD requires the interviewing LDAS, but also because the MQSD is not equipped itself to handle communication to multiple individual clients, as I have explained in detailed herein. (*Id*.)

B. Ground 2A: Petitioner Fails to Establish that Herzog in View of Spivey Renders Obvious Every Limitation of the Challenged Claims

1. *Petitioner's proposed combination of teachings suffers from many problems.*

30. Notably, Herzog is not necessarily equipped to handle additional, faster-arriving data without further modifications. For example, to the extent that Spivey is capable of providing faster data in the context of the Herzog system, the faster-arriving data would necessarily be processed in consideration for subsequent timestamp synchronization matching with associated video/audio fees, which have a significantly greater latency period. Herzog describes the audio/video as having a substantially longer delay (up to "63 seconds") as compared to the telemetry data feed delay (up to "2 seconds"). (EX-1015, ¶51.) In this regard, to the extent that Petitioner proposes to speed up with the telemetry data transmission with Spivey message queue server, Petitioner fails to address the question of what Herzog would do with all of the faster arriving data while said data is essentially waiting for the audio/video feed. For example, a POSITA would understand that the import of additional data (because the data arrives faster, as proposed by Petitioner) would impose some data processing requirement on the Herzog system. As such, additional servers, databases, and/or other components would assumingly be required in Petitioner's combination to meet such additional demands brought on the by the faster arriving data. Nevertheless, Petitioner does not suggest such additional

components, and because of this lack of additional components to handle the proposed faster arriving data, the Petitioner's proposed combination is not suited for operation as intended.

31. But even if Petitioner had proposed additional components (e.g., servers, databases) to handle the additional, faster-arriving data, a POSITA would have also understood that with each addition of a computer architecture component comes additional latency. Therefore, a POSITA would not understand that additional latency brought on by the inclusion of additional processing components would improve the Herzog system in any manner. Indeed, the additional latency brought on by any additional processing components would be understood to counteract the latency benefits afforded by Spivey (if any).

2. ***A POSITA would not have been motivated to combine the references' teachings.***

32. Fundamentally, the inclusion of the Spivey message queue server device into the Herzog Origin Server would not reduce latency by any meaningful amount. As such, a POSITA would not view the incorporation of such message queue server device into the origin server as an improvement, particularly in view of the additional complications and drawbacks that its inclusion would entail.

33. To illustrate, Herzog describes, and its techniques rely upon, two distinct latency periods. First, Herzog describes a latency period for the metadata, which has a latency of up to "2 seconds." (EX-1015, ¶82.) Second, Herzog

describes a latency period for the audio/video feed, which has a latency of up to "63 seconds." (*Id.*) Accordingly, Herzog describes that the audio/feed encoding, decoding, and transmission process accounts for and contributes to the substantial majority of the latency. At most, the teachings of Spivey could be applied to address the 2 seconds of latency associated with the metadata. This is because, as I have explained in detail herein, Spivey does not concern the transmission of audio/video. (EX-2001, Sections V.B, VI.A.1.) And regardless, Petitioner proposes to "maintain the video content delivery system" and Herzog. (Petition, 21-22.) Therefore, the only possible outcome for the Petitioner's proposal is a reduction of the 2 seconds of latency associated with the metadata, and not a reduction of the 63 second of latency associated with the audio/video feed.

34. As I explain herein, the message queue server device would not be operable to reduce latency in Herzog whatsoever. Notwithstanding, even if the message queue server device were to be used to reduce metadata latency in Herzog, and even if the message queue server device were to reduce 100% of the latency associated with the metadata, this literal impossible reduction in latency would at most reduce the total latency in Herzog to 61 seconds. This is because, the latency cause by the origin server will equally impact the metadata and the video streams. Figure 4 shows that both the meta data from in the ERP server and the video data from the MPEG4 Publishing Encoders need to transit the origin server to reach the

client. Herzog states, "the origin server 54 is a server transfers data to other servers." (EX-1015, ¶51.) Therefore the maximum amount of latency the origin server can be responsible for is the "less than 2 seconds" (EX-1015, ¶74) that Herzog describes as the latency of the metadata. Herzog explains that the "latency of the video between when the user requests a video and when the video is shown on the display is approximately 63 seconds. This is due to the down linking, encoding, publishing and decoding of the video." (EX-1015, ¶74.) Thus, the remaining 61 seconds of latency will have to come from the other sources Herzog described, i.e., the "down linking, encoding," or "decoding of the video." This is further supported by Herzog's Figure 6 which clearly states that the Live Encoders (81) creates latency of ">32 sec" and the latency associated with the client APK for the video feed is ">24 sec." These two sources alone, neither of which would be impacted by Petitioner's and Dr. Wickers alterations, account for at least 56 seconds of latency. In comparison the metadata ERP Generator is only associated with "<1 sec" of latency and the client APK for the meta data is also only associated with "<1 sec" of latency. A reduction in latency from 63 seconds to 61, or even to just to 56 seconds, is not a meaningful reduction (if it were even physically possible), and it does not represent Spivey's promised latency reduction of "at least two orders of magnitude shorter than conventional time periods of legacy device." (EX-1017, ¶96.) Accordingly, a POSITA would not be motivated to make the proposed combination

because regardless of whether the proposed combination even worked, the promised latency reduction would not be understood as significant with the context of the Herzog disclosure.

II. CONCLUSION

35. For at least the foregoing reasons, it is my opinion that Petitioner's grounds do not render obvious any of the challenged claims of the '697 patent.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed this 30th day of May 2025 in Annapolis, Maryland.

Respectfully submitted,

Aviel Rubin, Ph.D.