

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SPORTRADAR AG,
Petitioner

v.

SPORTSCASTR INC.,
(D/B/A PANDA INTERACTIVE),
Patent Owner.

IPR2025-00275
U.S. Patent No. 11,039,218

PETITION FOR *INTER PARTES* REVIEW UNDER 37 C.F.R. §42.101

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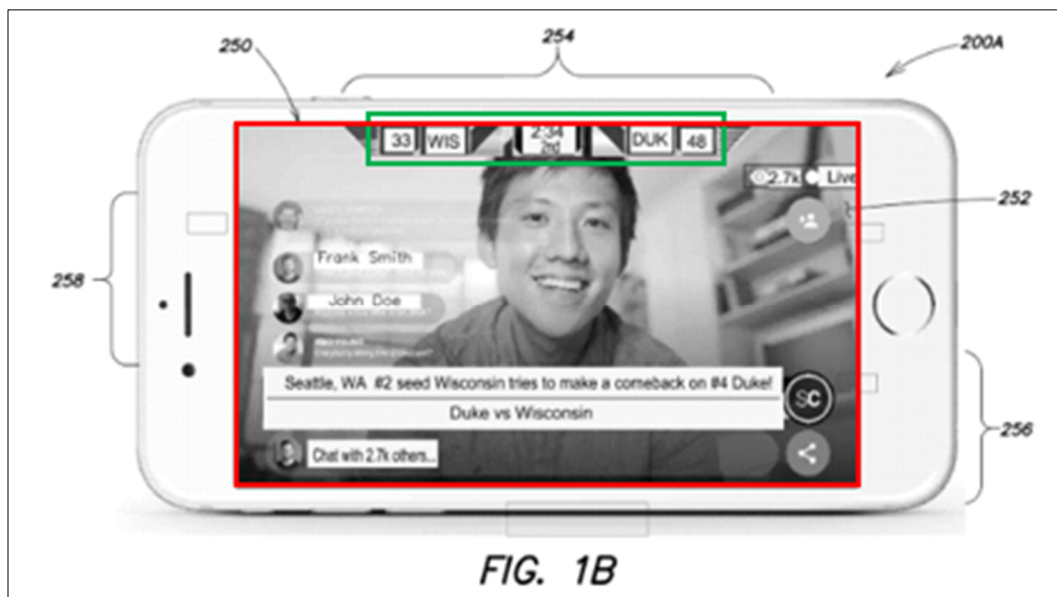
I. INTRODUCTION

Sportradar AG (“Petitioner”) requests *inter partes* review of claims 16-30 of U.S. Patent No. 11,039,218 (Exhibit 9, “’218”). This petition presents the same art and the same grounds, and relies on substantively the same declaratory evidence (albeit offered by a different expert), as co-pending IPR2024-01311, filed August 23, 2024 by Genius Sports Ltd. (“Genius”). Petitioner expects an institution decision by February 23, 2025. If instituted, Petitioner will file a motion under 37 C.F.R. §42.222(b) to join IPR2024-01311. If Genius’ petition is withdrawn prior to the Board’s institution decision, however, Petitioner intends to rely on the instant petition as grounds for seeking *inter partes* review of ’218. Petitioner has spoken with counsel of record for Genius, and Genius does not oppose joinder to the ’1311 petition in the event it is instituted. In that case, Petitioner will also agree to assume a “passive understudy role,” and, as such, the *General Plastic* factors would be “effectively neutraliz[ed].” *See Apple Inc. v. Uniloc 2017 LLC*, IPR2018-00580, Paper 13 at 10 (PTAB Aug. 21, 2018). As a result, the instant “copycat” petition does not present any additional complexity or require any additional effort by the Patent Owner or the Board, and, therefore should be granted along with the ’1311 Petition.

The ’218 is a replay of previously disclosed server components, arranged in a previously disclosed way, to accomplish a previously accomplished goal. Ex.1001

¶¶63-71. The '218 does not claim to have invented any new component. Rather, the '218 is directed to the basic concept of transmitting two or more related types of content to user devices over the Internet using known real-time communication protocols. *Id.*

The '218 provides a video feed (*i.e.*, a live stream of a sporting event) and at least one data feed (*i.e.*, the sporting event's score) to each device over separate "communication channels." *Id.* ¶¶63-66; Ex.1009, 19:26-32, 20:16-30, 23:4-18. The '218's final product is a **scoreboard feature** displayed on top of a **video feed**:



Ex.1009, Fig. 1B. But displaying content related to a live sporting event, such as the game's **score, clock, and advertisements**, has existed since at least 1994:



Ex.1045.

Moreover, the '218 even acknowledges that adapting this feature to live streaming and internet-based content distribution systems existed well before the '218's earliest possible priority date of August 5, 2016. Ex.1009, 2:13-36. For example, the '218 admits that Twitch.tv, released in 2011, was a “live streaming video platform” that included “social networking components”—*e.g.*, additional content such as comments and other social-media interactions. *Id.*

Although the '218 framed the purported invention as an “inventive server and memory storage architecture,” the prior art discloses the '218's server and memory storage architecture. *Id.*, 3:21-24; Ex.1001 ¶71. The Examiner never rejected the '218 claims under §§102 or 103 and merely identified three broadly related references when indicating that the claims were allowable. None of those references contemplate a control server which receives from the Internet first event information

germane to a sporting event or a server coupled to the control server which transmits the first event information to users in “real time” with low latency using the emerging WebSocket protocol.

As discussed below, Ellis, Spivey, and Herzog disclose every limitation of claims 16-30 (“Challenged Claims”) and any differences in the arrangement of their disclosed architecture or data flow processes would have been obvious. Ex.1001 ¶71. Thus, for the reasons detailed in the asserted grounds below, Petitioner respectfully requests *inter partes* review (“IPR”) of the Challenged Claims.

II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8(A)(1)

A. Real Parties-in-Interest

Sportradar AG, Sportradar Group AG, Sportradar Solutions LLC and Sportradar US LLC are the real parties-in-interest.

B. Related Matters

Patent Owner (“PO”) has asserted the ’218 against Petitioner in *SportsCastr Inc. v. Sportradar Group, AG.*, No. 2:23-cv-04772-JRG (E.D. Tex.). PO has also asserted the ’218 against Genius in *SportsCastr Inc. v. Genius Sports Ltd.*, No. 2:23-cv-04771-JRG (E.D. Tex.). Both cases (“Texas Litigation”) were filed October 5, 2023. This case may affect, or be affected by, the Texas Litigation.

The ’218 is one member of a patent family, other members of which are also asserted in the Texas Litigation, and each of which shares the same specification:

U.S. Patent Nos. 10,805,687; 10,425,697; and 11,039,218.¹ These patents are the subject of six IPR Petitions filed by Genius (“Genius IPRs”): the ’697 is the subject of IPR2024-01308 (claims 1-9) and IPR2024-01309 (claims 19-25, 27-30); the ’687 is the subject of IPR2024-01305 (claims 1-9) and IPR2024-01307 (claims 19-25, 27-30); and the ’218 is the subject of IPR2024-01310 (claims 1-15) and IPR2024-01311 (claims 16-30). In addition to the instant petition, Petitioner is filing five contemporaneous IPR petitions corresponding to the other five Genius IPRs, and, if instituted, will file §42.222(b) motions to join those IPRs.

Petitioner is also filing four other, contemporaneous IPR petitions challenging additional claims of the ’697 and ’687 not addressed by the Genius IPRs: two IPR Petitions collectively challenging claims 1, 10-18, 23, 24, and 26 of the ’697; and two IPR Petitions collectively challenging claims 1, 10-18, 23, 24, and 26 of the ’687.

C. Lead and Back-up Counsel and Service Information

Lead Counsel	Backup Counsel
Scott W. Cummings Reg. No. 41,567 scott.cummings@bclplaw.com	Alexander Walden provisionally recognized PTAB attorney under 37 C.F.R. §42.10 (<i>pro hac vice</i> affidavit to follow)

¹ Each patent in the family will be referenced by its last three digits. PO recently amended its complaint in the Texas Litigation to include claims 10-18 and 26 of the ’697 and ’687.

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A Power of Attorney accompanies this Petition pursuant to 37 C.F.R. §42.10(b). Petitioner consents to electronic service by email at scott.cummings@bclplaw.com, alexander.walden@bclplaw.com, frank.fabiani@bclplaw.com, and SportradarIPR@bclplaw.com.

D. Fee Payment

Petitioner authorizes the U.S. Patent Office (“USPTO”) to charge the filing fee and any other necessary fees to Deposit Account No. 02-4467.

III. REQUIREMENTS FOR IPR UNDER 37 C.F.R. §42.104

A. Grounds for Standing

Petitioner certifies the ’218 is available for IPR and that Petitioner is not barred or estopped from requesting IPR on the grounds identified herein.

B. Identification of Challenge and Relief Requested

1. Claims for Which IPR Is Requested

Petitioner challenges claims 16-30 of the ’218.

2. Grounds for Challenge

Petitioner challenges the claims based on the following references:

1. U.S. Patent Application Publication No. 2014/0229992 to Ellis et al. (“Ellis”), filed April 22, 2014, published August 14, 2014, is prior art under §102(a).
2. U.S. Patent Application Publication No. 2016/0036910 to Spivey (“Spivey”), filed August 4, 2014, published February 4, 2016, is prior art under §102(a).
3. U.S. Patent Application Publication No. 2015/0163379 to Herzog (“Herzog”), filed December 11, 2013, published June 11, 2015, is prior art under §102(a).

Petitioner requests IPR on the following grounds:

Ground	Basis	Claims	References
1	§103	16-30	Ellis in view of Spivey
2A	§102	21-22 and 27-28	Herzog
2B	§103	25-26 and 30	Herzog in view of Ellis
2C	§103	16-20, 23-24, and 29	Herzog in view of Spivey

3. Claim Construction

Claims are construed according to the principles set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). 37 C.F.R. §42.100(b). The claim terms of the '218 should be given their plain and ordinary meaning as understood by a person of skill in the art ("POSA"). The claim constructions proposed for purposes of this proceeding are not a concession by Petitioner as to the proper scope of any claim term in litigation nor a waiver of any argument in any litigation that claim terms in the '218 are indefinite or otherwise invalid or unpatentable. Petitioner reserves the right to respond to any of PO's constructions.

4. How the Claims Are Unpatentable

Section VIII, *infra*, explains how the Challenged Claims are unpatentable.

5. Evidence Supporting This Challenge

A list of exhibits is provided at the end of the Petition. The relevance of this evidence and the specific portions supporting the challenge are provided, *e.g.*, in Section VIII, *infra*. Petitioner submits a declaration of Dr. Kia Ph.D., Ex.1001, in support of this Petition. The testimony and opinions in Dr. Kia's declaration are substantively the same as those in the declaration of Dr. Wicker submitted in support of IPR2024-013011 filed by Genius (attached hereto as Ex.1048). *See generally* Ex.1049 (comparison of Ex.1 and Ex.1048), ¶¶21-769. To the extent Ex.1001 is not specifically cited to below, Petitioner nonetheless relies on the entirety of Ex.1001 in support of this Petition and in response to any arguments raised by PO.

IV. TECHNOLOGY BACKGROUND: PROTOCOLS FOR REAL-TIME OR LOW-LATENCY DATA TRANSMISSION

Transmission control protocol (TCP) and internet protocol (IP), together known as “TCP/IP,” aim to ensure reliable, low-latency, end-to-end data transmission between network-connected devices by dividing transmissions into “packets” and specifying rules for transmitting, routing, and receiving packetized messages. Latency, as it relates to live streaming, is the time delay between when an event occurs and when the distributed content related to that event, *e.g.*, video, audio, or other data, is displayed on a user device. Before the ’218, developers and standards development organizations had built on top of TCP/IP or created additional protocols to facilitate real-time transport of video and other data over the Internet. Ex.1001 ¶¶41-57.

A. HTTP Polling

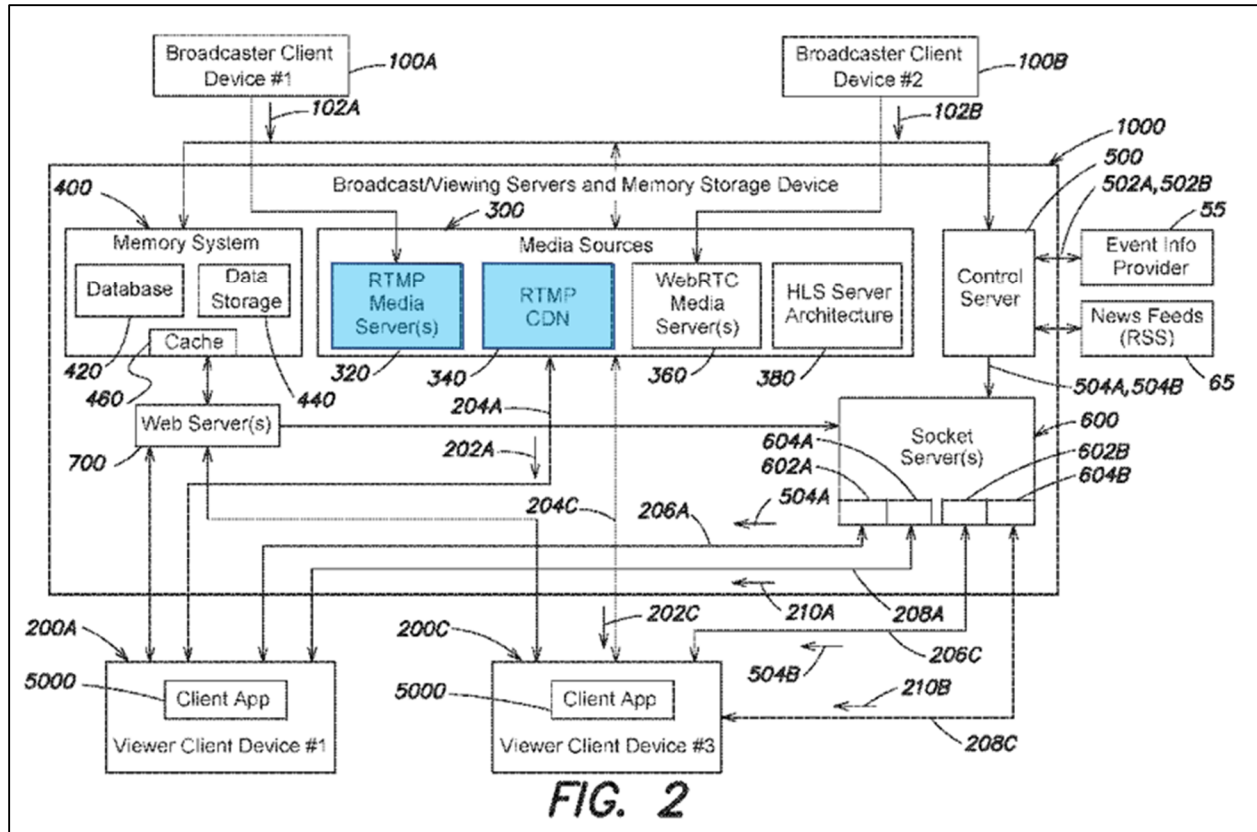
HTTP is a protocol that is built on top of TCP/IP. And HTTPS is a secure version of HTTP that uses encryption and verification to protect data. HTTP polling consists of a sequence of request-response messages between a client and a server. Upon receiving a request, the server responds with a new message, if there is one, or with an empty response if no new message is available for that client. After a short time Δ , called the polling interval, the client polls the server again to see if any new messages are available. Various real-time applications including chat, online games, and text messaging used HTTP polling in the 2016 time frame. Ex.1001 ¶¶50-51.

B. WebSocket

WebSocket was a known alternative to HTTP polling in the 2016 time frame. It is a client-server communication protocol that is bi-directional, full-duplex, and continuous. Real-time web applications commonly feature WebSocket connections to facilitate a persistent stream of data from a backend server to the end client. Once a WebSocket connection is established between a server and a client, the client receives instant updates from the server without the need to poll. Ex.1001 ¶¶52-53, 58-59.

C. Real-Time Messaging Protocol (RTMP)

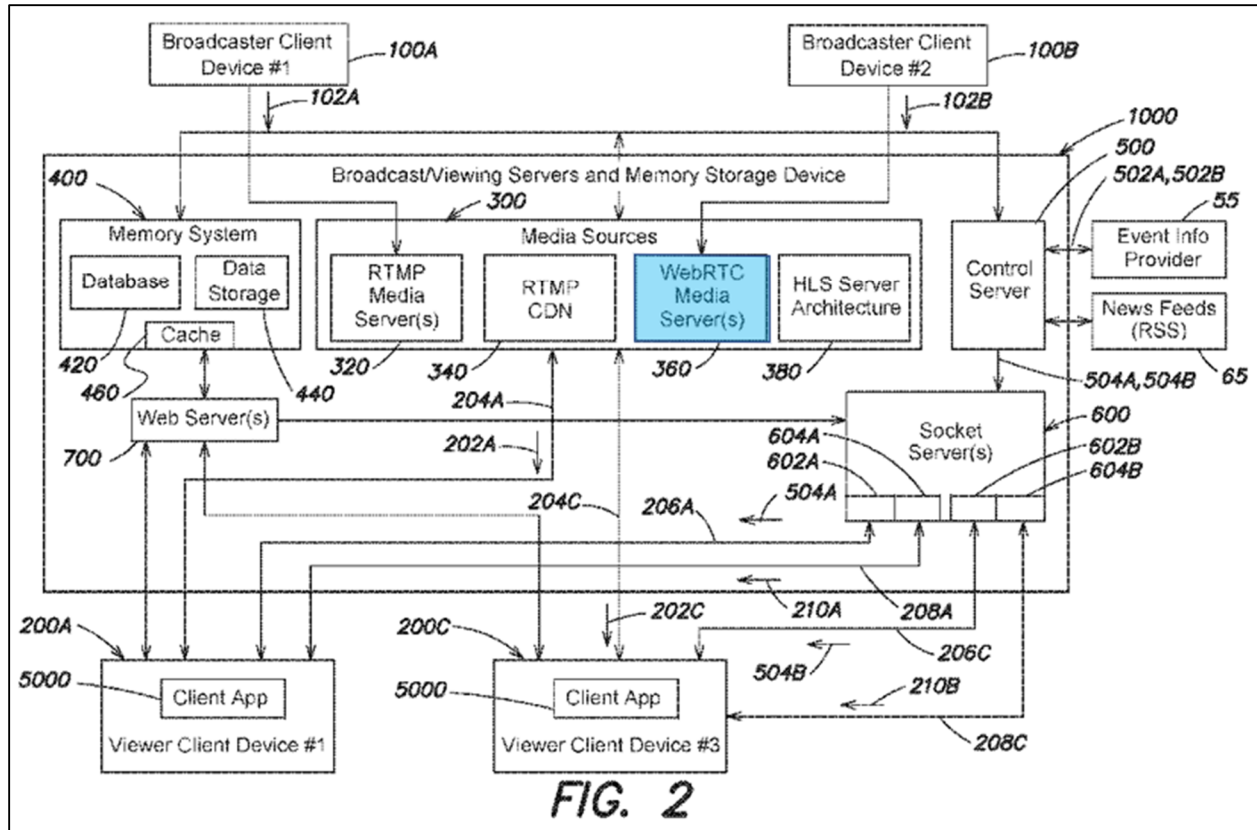
RTMP is a low-latency data transmission protocol in use as of at least 2012 that is designed to support live online streaming in social media platforms, streaming platforms, and media servers. Once a connection is established between the client and server, RTMP operates as a bi-directional multiplexing service over TCP to stream live and on-demand video or audio data from the server to the client device. Ex.1001 ¶55. The '218 uses this traditional streaming protocol:



Ex.1009, Fig. 2; Ex.1001 ¶55.

D. Web Real-Time Communication (WebRTC)

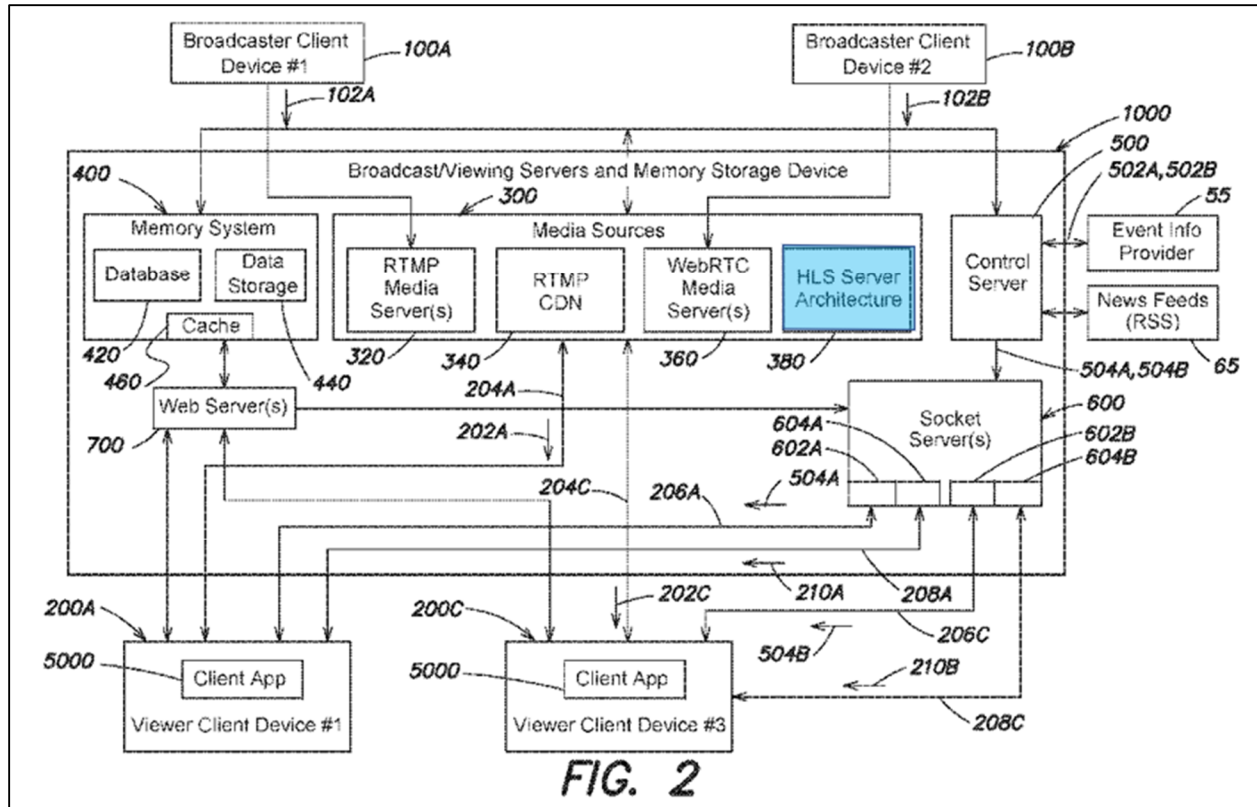
WebRTC is a technology first implemented in 2011 that enables real-time audio and video streaming within web browsers and mobile applications without an intermediary. Once a connection between devices is created, WebRTC offers video calling, video chat, and file-sharing capability with minimal plugins. Ex.1001 ¶56. The '218 also uses this traditional streaming protocol:



Ex.1009, Fig. 2; Ex.1001 ¶56.

E. MPEG Dynamic Adaptive Streaming Over HTTP (“MPEG-DASH”) / HTTP Live Streaming (HLS)

MPEG-DASH is an adaptive streaming protocol adopted in 2011 that enables segmented multimedia content delivery at different bit rates. Once the user chooses a stream of the desired bitrate, a web server transmits the data to produce smooth playback on the user’s device. HLS, another adaptive streaming protocol adopted in 2009, functions similarly and can be used in many of the same applications as MPEG-DASH. Ex.1001 ¶57. The ’218 also uses this traditional streaming protocol:



Ex.1009, Fig. 2; Ex.1001 ¶57.

V. THE '218

The '218 issued from Application No. 17/141,631 ("'631 Application"), which was filed January 5, 2021. Ex.1009, Cover. The '631 Application claimed priority to multiple provisional applications, the earliest of which, Provisional Application No. 62/371,558, was filed August 5, 2016. *Id.*, 1:9-42.

A. Alleged Problem

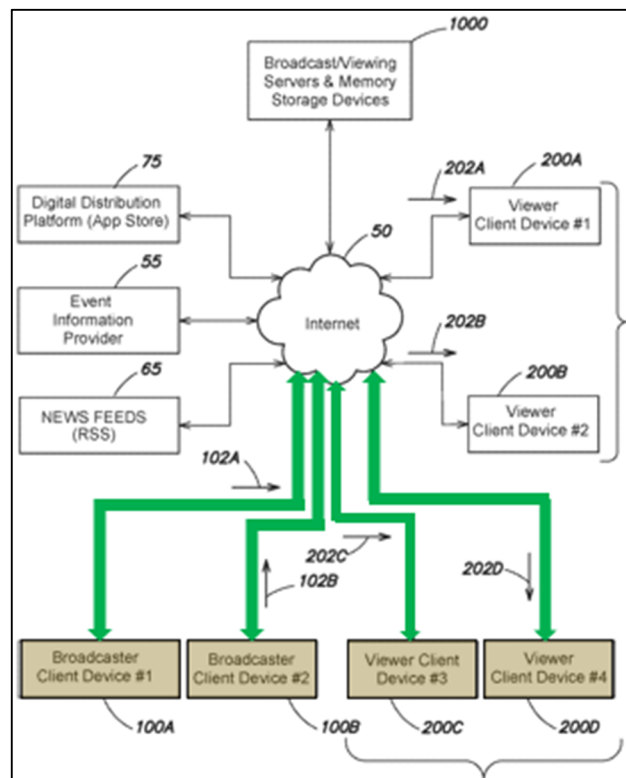
According to the '218, prior art techniques for streaming video to multiple users suffered from a latency problem in which there would be a delay between the

generation of a video and the time in which a user would receive the video stream.

Ex.1009, 2:45-65, 5:37-46; Ex.1001 ¶¶62.

B. Alleged Invention

The '218 purports to solve this latency issue. Ex.1009, 5:37-46; Ex.1001 ¶¶63-71. The '218 is directed to a “server and memory storage architecture” for obtaining, and providing to viewers, (1) an “audio and/or visual feed” including “commentary associated with [a] live event” and (2) a “separate event data feed including real time information associated with the ... live event.” Ex.1009, 3:16-29; *see also id.*, 7:26-47. A block diagram of the system is shown in Figure 1A:

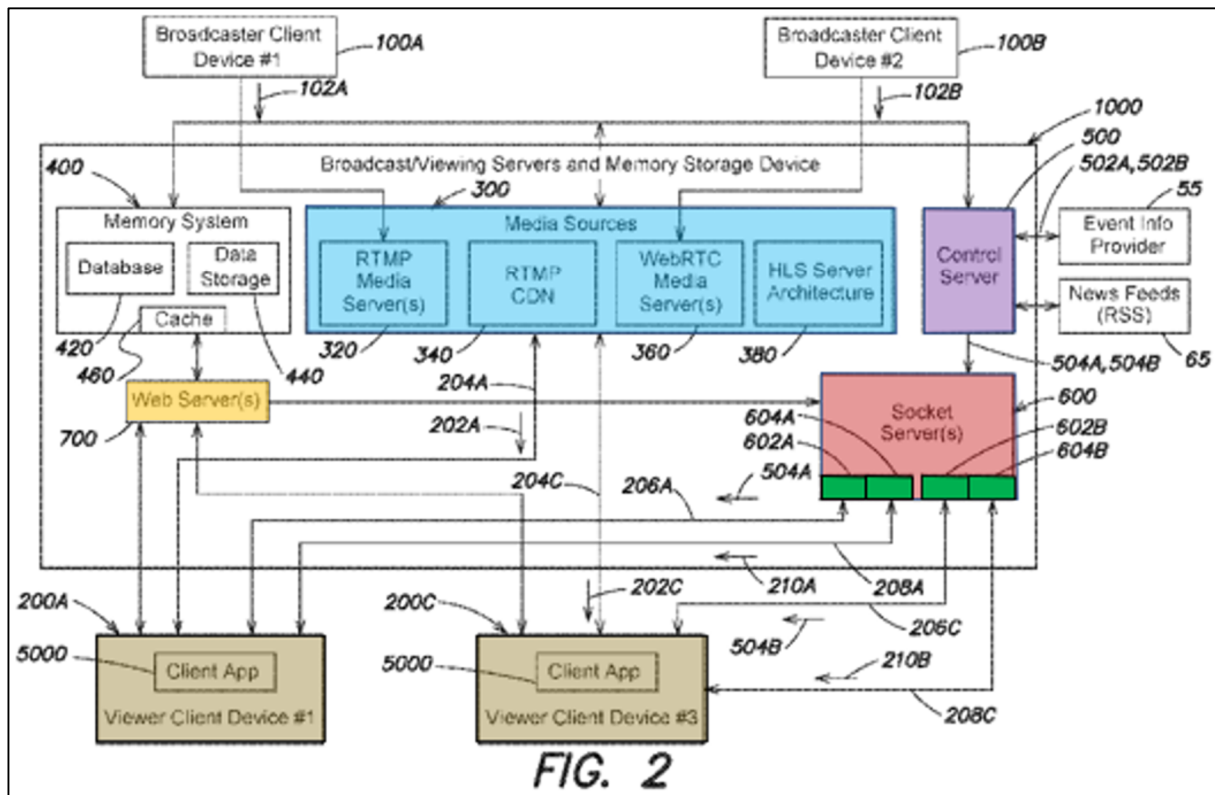


Id., 11:29-32, Fig. 1A. Figure 1A depicts providing “a first viewer client device (200A)” of “a first plurality of viewer client devices (200A, 200B)” that receive

“copies (202A, 202B) of a first broadcaster’s live stream of **digital content** (102A).”

Id., 9:34-39, 9:47-50.

Figure 2 shows additional system details. For instance, Figure 2 depicts **viewer client devices** (“VCDs”), **media sources**, a **control server**, a **socket server**, **event sockets**, a **web server**, an event information provider, and a memory system.



Id., Fig. 2.

Media Sources. The '218 describes media sources as generic “computer servers.” *Id.*, 19:26-32, 56:5-15. Although in some implementations the media sources may include media servers directed to specific known protocols, such as RTMP, WebRTC, and HLS, the media sources’ purpose is to “receive a live stream

of video-based commentary from a given broadcaster client device and provide copies of the live stream of video-based commentary to one or more [VCDs].” *Id.*

Control Server. The ’218 describes a control server as a generic server that retrieves “event information” from an “event information provider” to pass to the socket server, discussed below. *Id.*, 19:60-67, 21:56-67. The event information is “germane to” a particular “live sporting event.” *Id.*, 21:55-65.

Webserver. The web server is a generic server designed to facilitate communications “between the servers/memory storage devices [] and one or more mobile broadcaster/viewer client device executing the client app.” Ex.1009, 18:64-19:6. According to the ’218, “much of the instructive communication between the client devices and the servers/memory storage devices [] occurs via the web server(s).” Ex.1009, 19:7-9. The webserver also facilitates communications “to and from web-based client devices (that access the web server(s) via a web portal at a particular URL).” *Id.*, 19:4-6.

Socket Server(s). The ’218 describes socket server(s) as generic servers. *Id.*, 56:5-16. The socket server’s purpose is to “facilitate communication” of “synchronized event information retrieved by the control server” between the control server and the VCDs. *Id.*, 20:19-30. The socket server uses “one or more sockets ... dedicated to the particular event” allowing VCDs “to establish an event information channel with the socket server.” *Id.*, 20:24-30. The socket server then shares event

information in “event messages” via the event information channel “in a synchronized manner” to all viewers “following the particular event.” *Id.* The socket server may facilitate communication of “chat messages” in a similar manner. *Id.*, 20:31-63.

Although the ’218 claims that the foregoing server architecture and its functionality are “inventive,” as explained in more detail herein, the prior art discloses or renders obvious every limitation of at least one of the Challenged Claims. *See* §VIII, *infra*.

C. Prosecution History

The ’218 issued without a single claim amendment. Ex.1011, 303-09. And the Examiner did not issue a single rejection under 35 U.S.C. §§102 or 103. *See id.* Although the Examiner did not apply (*i.e.*, map) any prior art against the claims, the Examiner did characterize three references as being deficient: Bocharov (US2011/0083144), DeWeese (US2001/0039209), and Shoff (US2001/0001160). *Id.*, 241-49 (April 13, 2021 Non-Final Office Action). In contrast to Ellis, Herzog, and Spivey, none of these references disclose, among other things, a control server to retrieve, via the Internet, first event information germane to a first sporting event, or a socket server having an event socket corresponding to the first event information.

VI. LEVEL OF ORDINARY SKILL IN THE ART

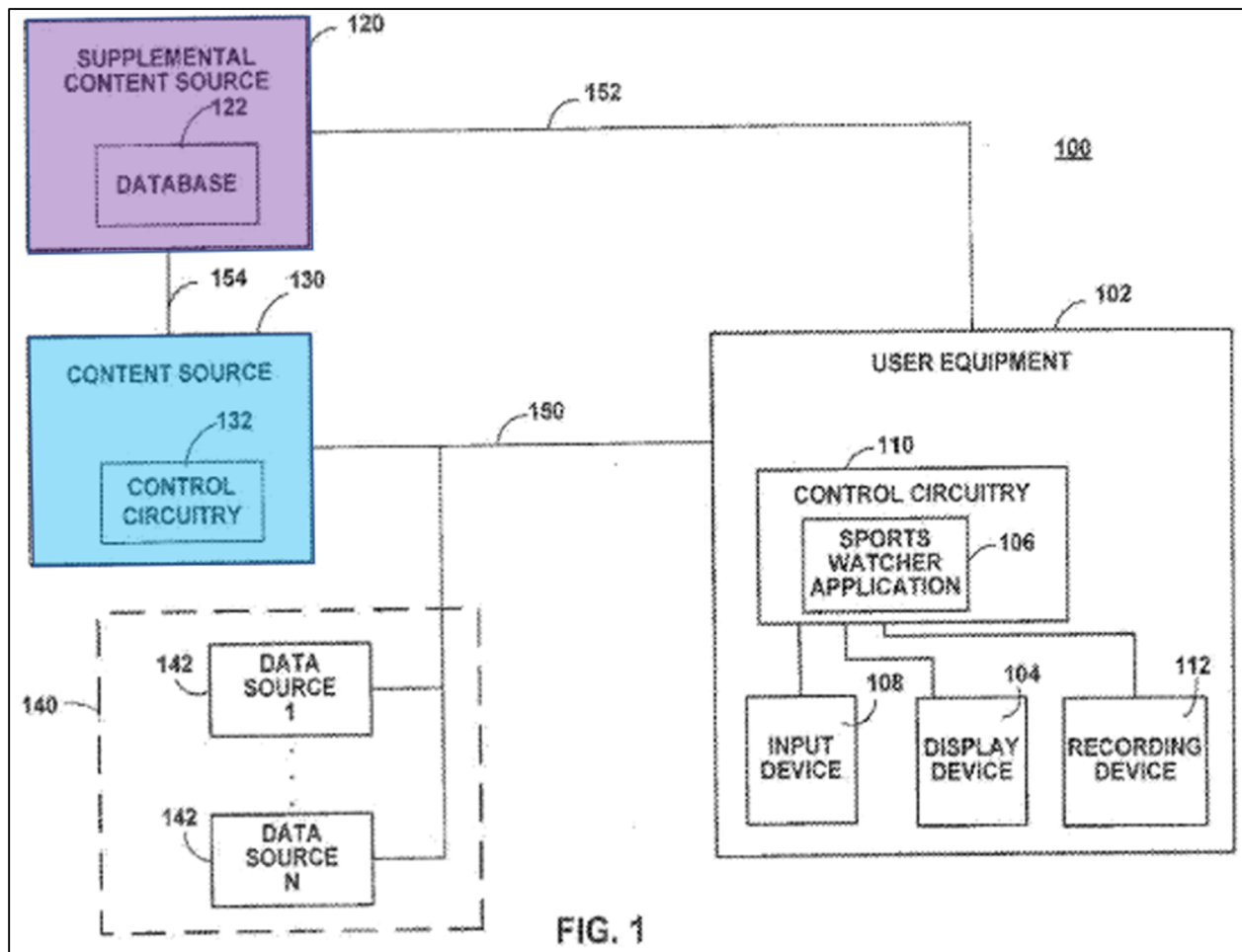
A POSA in the field of computer networking at the time of the alleged invention, August 5, 2016, would have had at least a bachelor's degree, or equivalent, in electrical engineering, computer engineering, computer science, or a related field or an equivalent number of years of working experience, and one to two years of experience in networking environments, including at least some experience with live-streaming network architecture. Ex.1001 ¶¶72-76. Additional education or experience in related fields could compensate for deficits in the above qualifications. *Id.*

VII. OVERVIEW OF THE PRIMARY REFERENCES

A. Ellis

Ellis identified the need for current delivery systems to provide “a custom set of features and functionality for specific types of media content, such as sporting events” Ex.1016 ¶4. Ellis explained that the current systems “fail to take full advantage of today’s high-end user equipment devices.” *Id.* ¶5. To solve the above problems, Ellis discloses broadcasting systems and methods for “enhanced sports-related media content access and display.” *Id.*, Abstract.

Ellis’s Figure 1 is an illustrative media system:



Id. ¶15, Fig. 1. As depicted, Ellis’s system contains a **content source**, a **supplemental content source** (“SCS”), data sources, user equipment, and a sports watcher application. *Id.*, Fig. 1.

While the system provides the video feed over communication path 150, the SCS further provides real-time information over a separate communication path 152. *Id.* ¶¶41-42, Fig. 1. Importantly, “in some embodiments, this sports-related information is provided to user equipment 102 as a plurality of real-time data feeds”

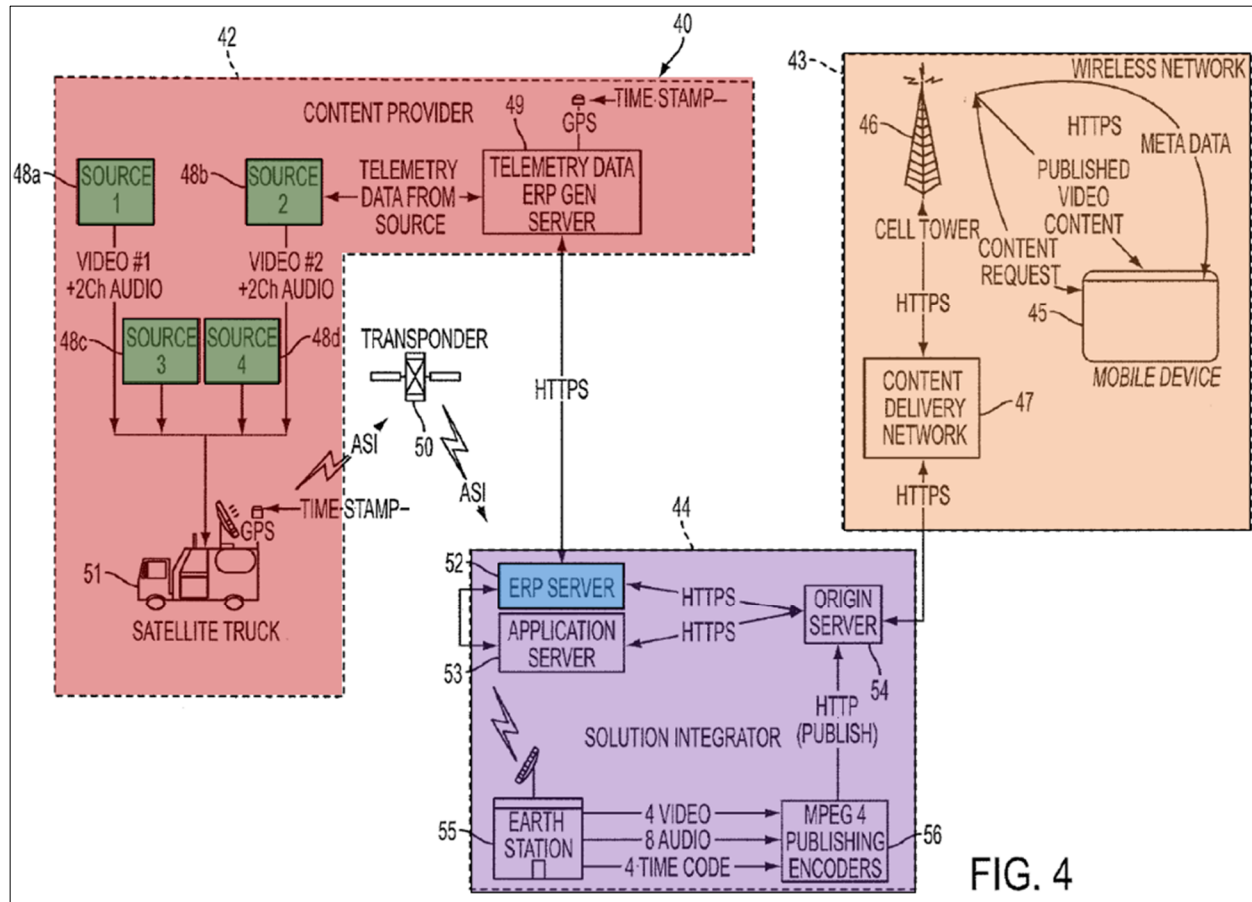
where each “data feed may be individually accessed or subscribed to” *Id.* ¶41.

The SCS communication path 152 is protocol agnostic.

B. Herzog

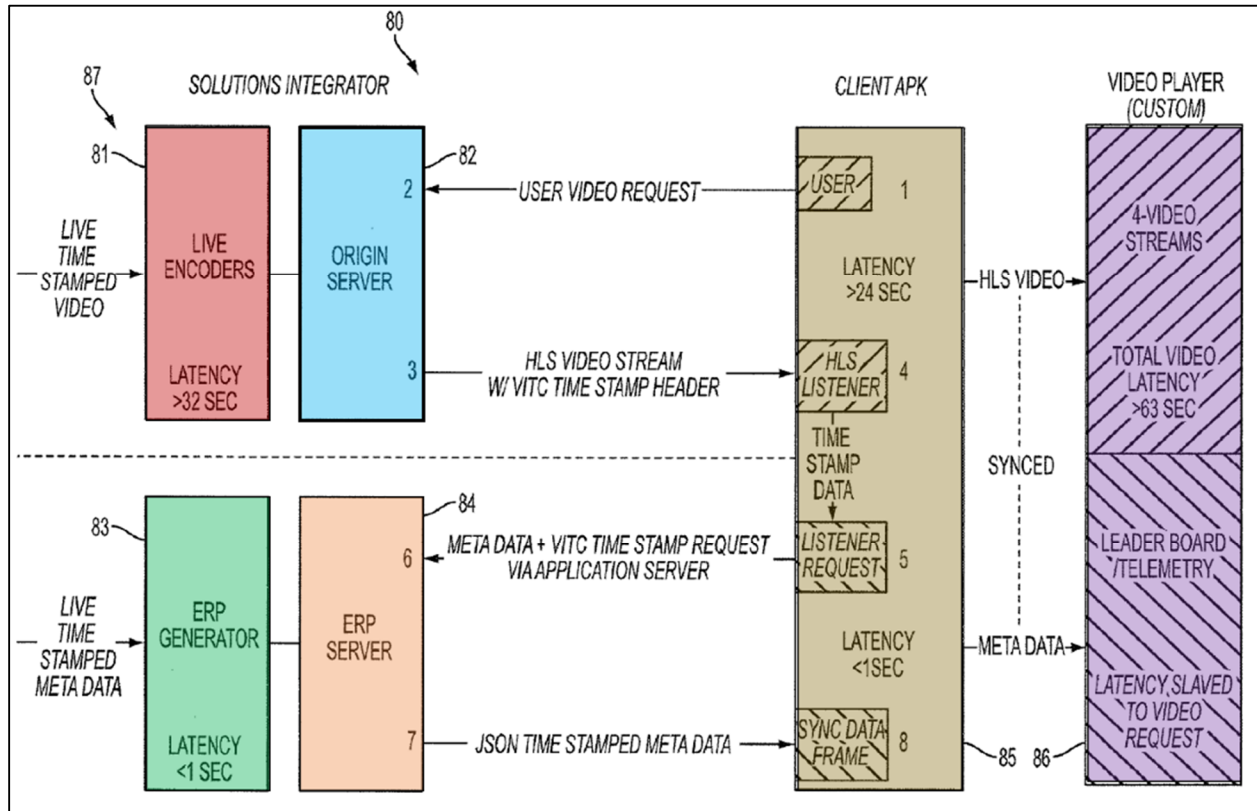
According to Herzog, it “may be desirable to provide a mobile device, such as a tablet” with a “video that is streamed live from the Internet to a client playing using” HLS while also providing “additional information related to the HLS video,” such as meta-data. Ex.1015 ¶3.

Herzog uses an “Indianapolis Car Race” as a primary example to explain how its system transmits live “video, audio, and metadata ... from a sports venue via different communication paths,” to a client device. *Id.* ¶16. Herzog’s Figure 4, shown below, depicts an illustrative streaming network:



Id., Fig. 4. Herzog's Figure 4 shows a **content provider**, a **solutions integrator**, and a **wireless network**. *Id.* ¶¶43, 45. The content provider "is configured to provide video and audio data of an event occurring in real time and provide telemetry data (meta-data) including several parameters changing during the event." *Id.* ¶45. Video and audio data includes "multiple video/audio streams of race cars and drivers, as they are imaged at different locations on the race track." *Id.* Figure 4 shows "four **video/audio streams** provided from four different imaging sources, namely sources 48a-48d." *Id.* ¶46. These channels are transmitted to an **Enhanced Result Protocol (ERP) generator** server configured to provide telemetry data in HTTPS format to the

solutions integrator. *Id.* ¶47. The solutions integrator is depicted in further detail below in Figure 6:



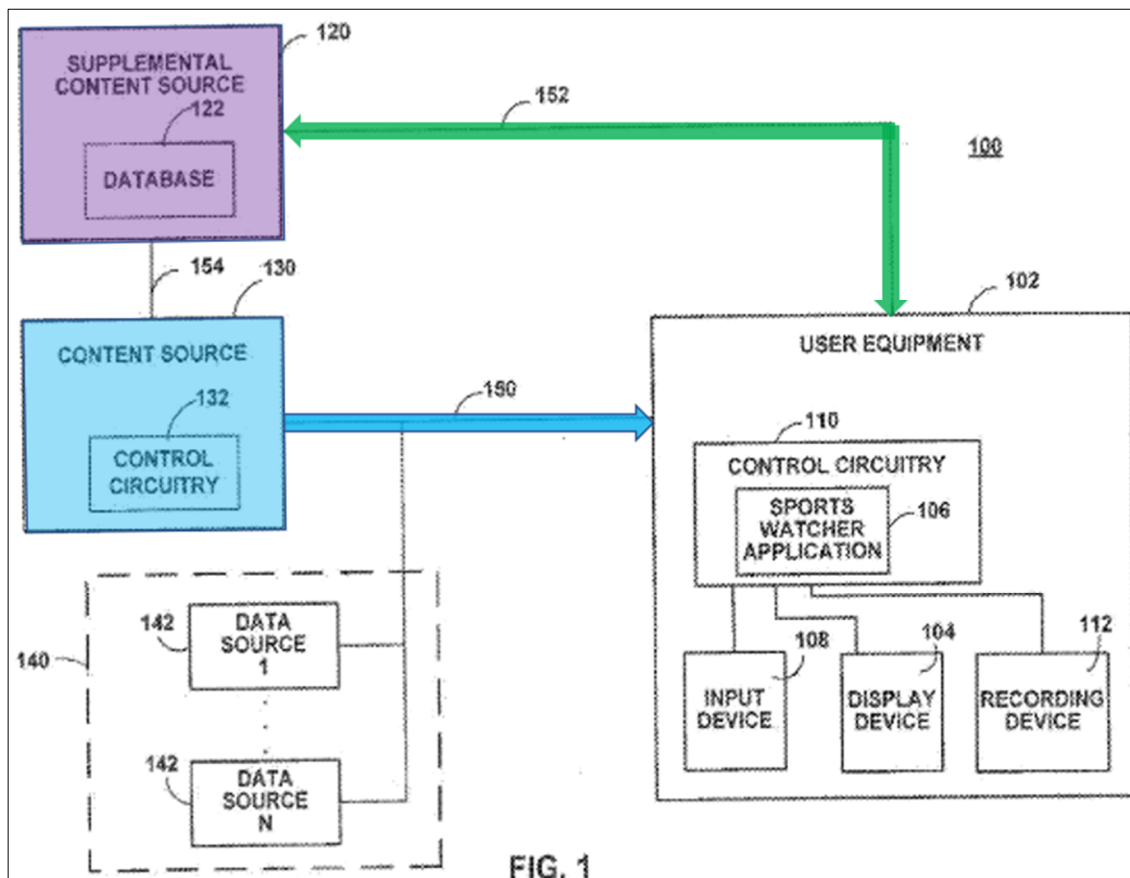
Id., Fig. 6. Once **live encoders** receive “time stamped video/audio data and convert the same into an MPEG stream with a VITC time stamp header,” they then send the data to an **origin server** to “publish[] the data as an HLS video stream with a VITC time stamp header.” *Id.* ¶67. In parallel, the **ERP generator** extracts various parameters from the live time stamped meta-data (e.g., the status of each car and driver in a race), then sends those parameters to the **ERP server** for publishing “in an HTTPS communications format.” *Id.*

VIII. EACH OF THE CHALLENGED CLAIMS IS UNPATENTABLE

A. Ground 1: Claims 16-30 Are Obvious Over Ellis in View of Spivey

1. Motivation to Combine

Ellis discloses the '218's broad functionality. Specifically, Ellis's two-part delivery method/system comprises transmitting a **video stream** originated by a **content source** (i.e., "media source") over communication path 150 and transmitting a **data stream** originated by a **SCS** over a separate communication path 152, as shown below:



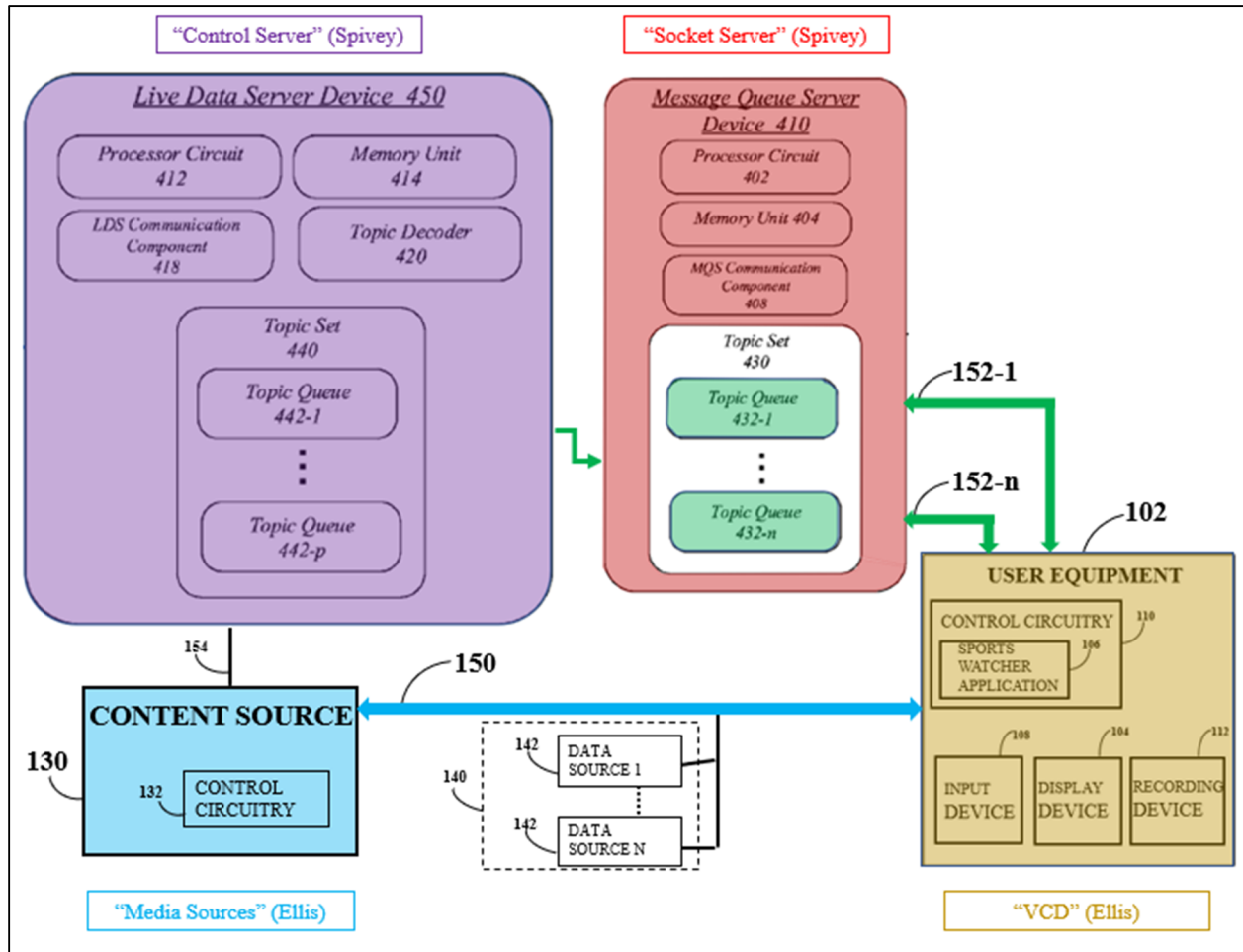
Ex.1016, Fig. 1; Ex.1001 ¶106. Ellis teaches that the SCS “may be any suitable content source” that provides live data feeds containing “score, play, and up-to-date game summary information to user equipment.” Ex.1016 ¶¶41, 155.

Although Ellis discloses the claimed functionality of delivering live video and real-time supplemental content data over separate channels, Ellis does not explicitly disclose some of the '218's backend architecture/process flows for delivering the supplemental content data. Specifically, Ellis does not disclose transmitting the supplemental content data to user equipment via a socket server. However, a POSA would have found it obvious to implement Ellis's SCS as a websocket server, as taught by Spivey, to achieve full-duplex communications between a client and a remote host with low latency. Ex.1001 ¶¶106-108 (citing Ex.1046).

A POSA would have understood that socket servers were well-known components for implementing real-time data delivery, such as in Ellis, with reduced latency. Ex.1001 ¶¶107-109; §IV.B, *supra*; Ex.1017 ¶¶96 (describing pushing a data payload from the message queue server device, *i.e.*, a socket server, to the client device “with a time delay of 100 milliseconds or less”); 35 (broadly describing a message queue server as “one or more electronic devices capable of receiving, processing and sending information for the system,” including a wide range of exemplary devices). For example, a POSA would have appreciated Spivey's teaching that network components—specifically the Live Data Server Device

(LDSD) (*i.e.*, “control server”) and Message Queue Server Device (MQSD) (*i.e.*, “socket server”)—are useful in a data delivery system because they help dramatically reduce latency. Ex.1017 ¶¶28 (disclosing a system designed to reduce delay “to an order of milliseconds”); 43 (disclosing that a client device may request and participate in a websocket connection); 96 (reciting pushing digital content to a client device “substantially simultaneously . . . e.g., with a time delay of 100 milliseconds or less”) Ex.1001 ¶109. A POSA would have also appreciated the benefits associated with the websocket connection that Spivey’s socket server makes to communicate with VCDs, (Ex.1017 ¶¶43, 61, 74, 92), including convenient and efficient full-duplex communications between a client and a remote host with low latency. Ex.1001 ¶¶109-110 (citing Ex.1046); §IV.B. Thus, a POSA would have been motivated to integrate Spivey’s LDSD and MQSD into Ellis’s data delivery system to reduce latency to a time period “at least two orders of magnitude shorter than conventional time periods of legacy devices,” as taught by Spivey and to obtain additional benefits associated with websocket communications. Ex.1017 ¶96; Ex.1001 ¶¶109-110.

A POSA would have done so by implementing Ellis’s SCS using Spivey’s LDSD (*i.e.*, “control server”) and adding Spivey’s MQSD (*i.e.*, “socket server”), as illustrated below in the annotated, combined flow chart of Ellis Figure 1 and Spivey Figure 4:



See Ex.1016 ¶¶39, 41, Fig. 1 (recreated); Ex.1017, Fig. 4 (recreated) (combined as explained above); Ex.1001 ¶111. The combined system would maintain the video content delivery system and upgrade the supplemental content data delivery system by including a socket server to provide real-time data with reduced latency. Ex.1001 ¶111.

A POSA would have been motivated to modify Ellis in light of Spivey because both references relate to the same technical subject matter—content delivery for real-time events. *Id.* ¶¶112-113; Ex.1016, Abstract; Ex.1017, Abstract. Both Ellis

and Spivey describe methods and/or systems for streaming video and/or event data to one or more users, such that video and/or event data are transmitted simultaneously. *See, e.g.*, Ex.1016 ¶156; Ex.1017, Abstract; Ex.1001 ¶¶112-113. A POSA would have also combined Ellis and Spivey because the references solve the same or similar problems, namely, providing video and/or event data to multiple users over the Internet quickly to multiple users. Ex.1001 ¶¶112-113.

Implementing certain portions of Spivey's system into Ellis's system would have been obvious because doing so would have required only the simple substitution of known elements for another to obtain predictable results. *Id.* ¶114. For example, Ellis discloses compatible hardware and software components to act as a source for event information to be transmitted to users. *See, e.g.*, Ex.1016 ¶47 ("Content source 130, supplemental content source 120, and data sources 140 are shown in FIG. 1 as separate elements" but "[i]n practice, their functionality may be combined into a single mechanism and provided from a single system at a single facility, or their functionality may be provided by multiple systems at multiple facilities."). Predictably, therefore, a POSA would have simply substituted portions of Ellis's SCS with Spivey's LDS and MQSD. Ex.1001 ¶114. For example, it would have been obvious to substitute any of Ellis's elements with any combination of Spivey's LDS, MQSD, and/or Live Data Source(s), which are similarly

involved in transmitting live event data to users and may be configured in any manner. Ex.1001 ¶¶114-115.

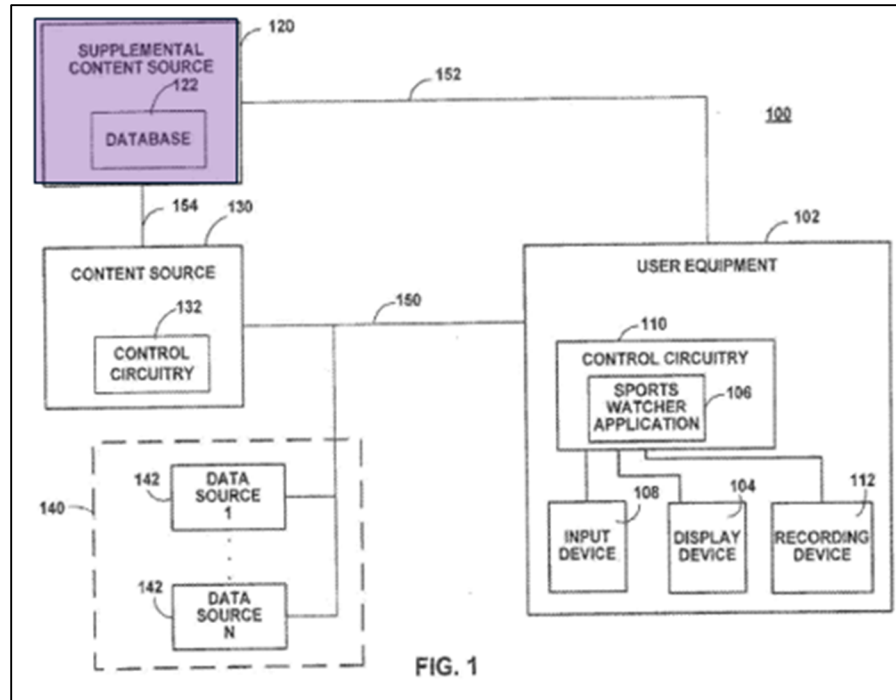
A POSA would have had a reasonable expectation of success in integrating Spivey’s control server and socket server into Ellis’s data delivery system. *Id.* ¶¶106-115. Understanding the compatibility of these similar systems, a POSA would have had a reasonable expectation of success in integrating Spivey’s system of “topic queues and open duplex communication connections” employing websockets to transmit “data from a live event (e.g., news event, a gaming event, sporting event, etc.)” to multiple users “in real-time.” Ex.1017 ¶27; Ex.1001 ¶115.

2. Independent Claim 16

a. Limitation 16.0²

To the extent the preamble is limiting, Ellis discloses this subject matter. Ellis discloses a SCS providing first event information germane to the first sporting event through a “plurality of real-time data feeds,” one of which can include “sports score and game status information,” while the other carries “sports commentary.” Ex.1016 ¶41. Figure 1 illustrates Ellis’s SCS:

² Ex.1010 is a claim listing that enumerates each claim element.



Id., Fig. 1.

Ellis further discloses that the VCD displays the digital content it receives. Ex.1001 ¶¶182-183; *see, e.g.*, Ex.1016, Abstract (disclosing broadcasting systems for “enhanced sports-related media content access and display”); Figs. 4-5 (displaying video and online gaming information); ¶132 (“game commentary from a variety of sources may also be displayed to the user”).

b. Limitation 16.1

Ellis in view of Spivey discloses this limitation. Spivey discloses receiving a digital content copy via a video communication channel between at least one media source and the VCD. For example, Spivey discloses transmitting a first media source’s internet address to establish an internet communication channel. Ex.1017 ¶82, Fig. 8. Spivey teaches that a particular MQSD’s address “may resemble a

uniform resource locator (URL).” *Id.* ¶82. When a client device connects and subscribes to an MQSD using these topic queues, the MQSD pushes a “data payload” carrying digital content relating to a sporting event (*e.g.*, statistics or plays) to that device. *Id.* ¶¶96, 104. The MQSD does so using “any one and the combination of wired and/or wireless networks including ... the Internet.” *Id.* ¶179.

Although Ellis does not explicitly disclose transmitting at least one instruction to the client device to cause the device to request a digital content stream, a POSA would have considered transmitting instructions for a user “to take some action” to receive content as suggested by the ’218 (20:51-63) as an obvious marketing strategy to increase viewership of the digital content. Ex.1001 ¶¶184-185. Like the ’218, Ellis teaches that sports related content may include online discussion boards and chat rooms enabling the system to message end users. Ex.1016 ¶38. And Spivey teaches in a similar vein that a user interface lists topics available for subscription from a message queue server. Once a user subscribes to at least one topic, the live data app sends the selected topics to the MQSD³ requesting online gaming information updates. Ex.1001 ¶185.

³ Spivey often discusses a connection between the client device and the system using a live data access server (“LDAS”), however, Spivey also discloses that the MQSD may be “accessible to clients over the network directly.” Ex.1017 ¶¶36, 84. For

In the alternative, Ellis discloses transmitting at least one instruction to the first client device to cause the first client device to request a first copy of a first stream of digital content relating to the first sporting event. Ex.1016 ¶¶44 (“the interactive sports watcher application is a self-executing” application downloaded to user equipment), 51-52 (user equipment executes instructions of interactive sports watcher application). Thus, a POSA would have understood that Ellis necessarily transmits instructions to the client device during a digital handshake procedure between its user equipment and media sources at the outset of a connection. Ex.1001 ¶186.

c. Limitation 16.2

Figure 1 of Ellis illustrates that the SCS transmits “sports-related information” to user equipment 102 over communication path 152. Ex.1016, Fig. 1. Ellis teaches

example, “MQS communication component 308 ... may push data from topic queues 332-1, 332-n to the subscribers of the topics corresponding to those topic queues.” *Id.* ¶46. Also, the system does not require an LDAS, only that it “may include a[n] [LDAS].” *Id.* ¶38. Thus, a POSA would have understood Spivey to disclose a direct connection between the client devices and MQSD. Ex.1001 ¶185. A POSA would have used this implementation because reducing the amount of server transfers would reduce latency, which is Spivey’s main purpose.

that the SCS may be any suitable content source configured to provide real-time sports information, but does not specify that the SCS is a socket server which transmits the sports-related information to the user equipment.

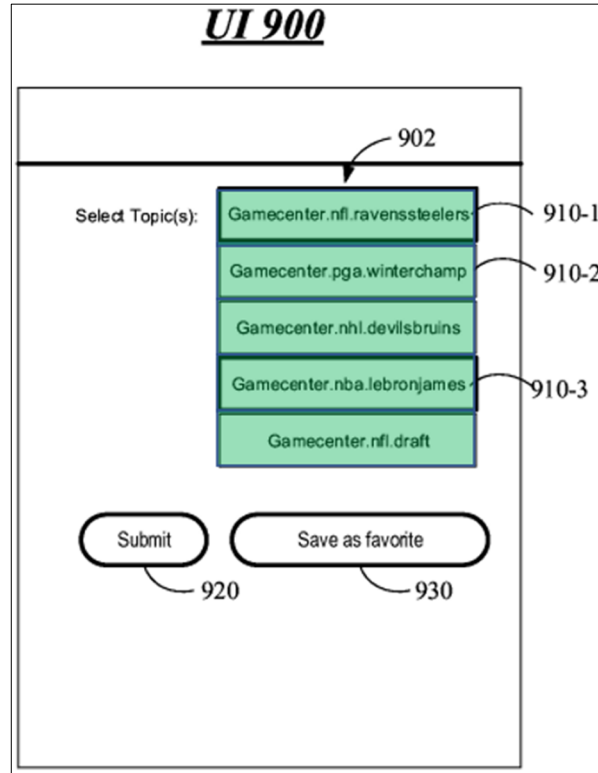
Spivey's entire system is based on providing "live event data in real time." Ex.1017, Abstract. For example, according to Spivey, client devices "may request and participate in a websocket connection," which "typically comprises a two-way connection between two entities." *Id.* ¶¶43, 61. A POSA would have known that a websocket connection is between a socket server and at least one client. Ex.1001 ¶¶187-191.

The '218 explains that a socket server contains "one or more first event sockets [] dedicated to the first event information." Ex.1009, 22:1-4. The first event socket has a corresponding EventID that the VCD "uses ... to connect to [the] socket," *e.g.*, by using a "URL including the ... EventID in a path of the URL." *Id.*, 22:5-17. Thus, a POSA would have understood a "socket" to be a uniquely addressable communication endpoint on a server where first event information is provided to a VCD. Ex.1001 ¶189 (citing Ex.1009, 20:64-21:13, 22:5-25). A first event socket corresponding to the first event information germane to the first sporting event is simply a socket where information about one sporting event is provided to a VCD. *Id.*

Spivey's **topic queues** are “where data payloads are placed” that, for example, “relate to a specific game between two NFL teams.” Ex.1017 ¶¶51-52. The data payloads, “[w]hen the live event is a sporting event,” include, “for example, a score, a play, ..., and so forth.” *Id.* ¶48. Topic queues have a corresponding “topic label” which is used “to identify a topic queue.” *Id.* ¶49. “A topic label may be, for example” a “text string such as gamecenter.nfl.ravenssteelers.” *Id.* ¶66.

Client devices use these topic label text strings to connect and subscribe to MQSD's topic queues. First, client devices “request a live data connection” with the MQSD by “select[ing] or enter[ing] the address or connection information to a particular” MQSD.⁴ *See id.* ¶¶81-82. This “address may resemble a uniform resource locator (URL).” *Id.* ¶82. Second, as shown in Figure 9, client devices can use the topic labels to select “the topics available from [the MQSD] in a topic selection list” and “subscribe to” those topic queues:

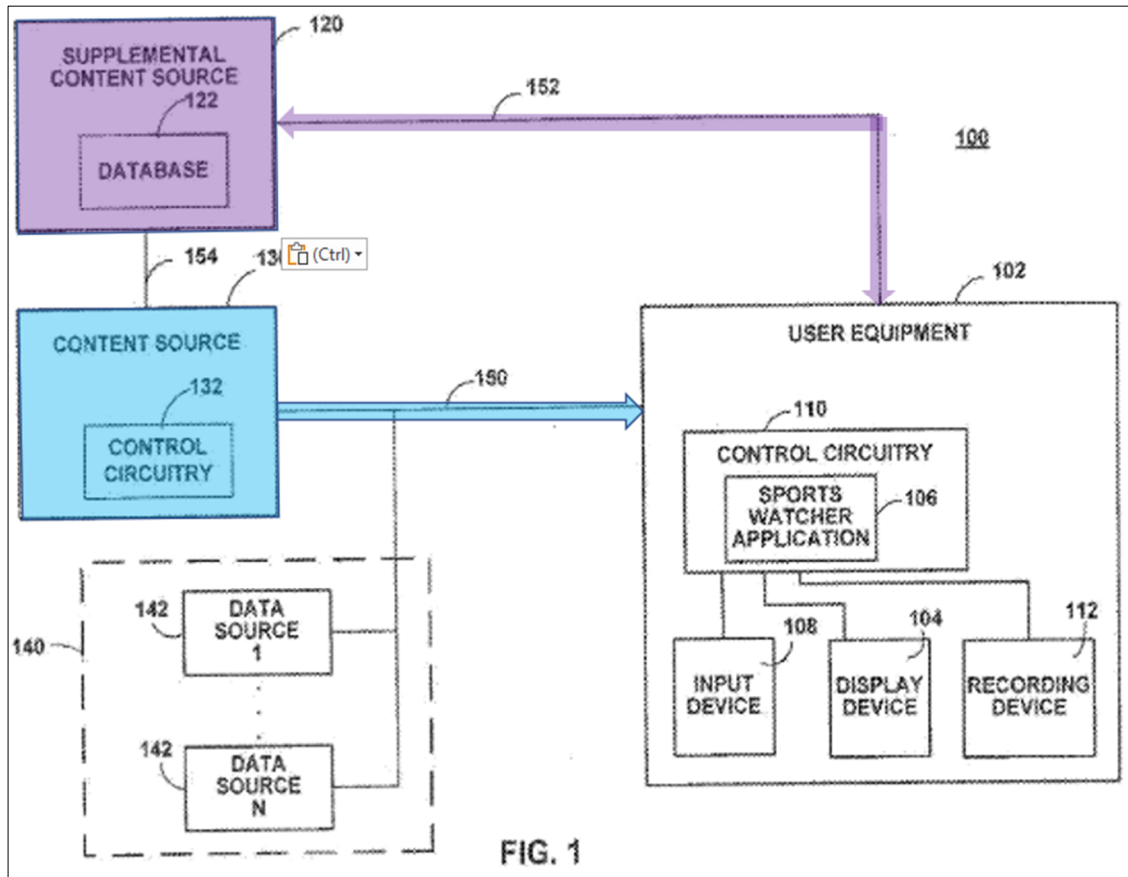
⁴ *See* §VIII.A.2.b, n.7.



Id. ¶¶83-84, Fig. 9. Third, “the data payload” may be pushed to the subscribed connected devices that requested that topic. *Id.* ¶96. Thus, a POSA would have understood that Spivey’s topic queues disclose first event sockets corresponding to the first event information germane to the first sporting event. Ex.1001 ¶191.

d. Limitation 16.3

Ellis discloses that a “content source” streams “broadcast programming” to multiple different users over individual “communication path[s] 150.” Ex.1016 ¶¶39-40. Meanwhile, the system provides “real-time sports scores and game summary information” to those user equipment devices from the SCS using individual communication path 152:



Id. ¶¶39, 41, Fig. 1. Thus, a POSA would have understood that the first live stream copies of digital content in Ellis do not provide event information using video internet communication channels. Ex.1001 ¶192.

3. Dependent Claim 17

a. Limitations 17.0-17.1

As stated above, Spivey's topic labels enable VCDs to connect and subscribe to sports-related topic queues by selecting a sporting event from a list. *See* §VIII.A.2.c, *supra*; Ex.1017 ¶¶51-52, 83-84; Fig. 9; Ex.1001 ¶193.

b. Limitation 17.2

As noted above, the VCD can use Spivey's topic labels to select "the topics available from [the MQSD] in a topic selection list[ing]" topic queues relating to various sporting events. *See* §VIII.A.2.c, *supra*; Ex.1017 ¶¶51-52, 83-84; Fig. 9. Once the VCD selects a topic label, a "topic decoder . . . use[s] the topic label to identify a topic queue [], and may place the data payload of the topic entry into the topic queue." *Id.* ¶49. For streaming to the VCD the data payload is then pushed from the topic queue to the VCD through the MQSD. *Id.* ¶¶65, 96, Fig. 6; Ex.1001 ¶194; §VIII.A.2.

c. Limitation 17.3

As noted above, after selecting a particular topic label relating to a sporting event, the VCD can "display a selection user interface element to allow the operator to select one or more topics to subscribe to." *See* §VIII.A.2.c, *supra*; Ex.1017 ¶75; Fig. 10; Ex.1001 ¶195.

d. Limitation 17.4

Ellis in view of Spivey discloses this limitation. As stated above, Ellis discloses transmitting instructions to a VCD. *See* §VIII.A.2.b, *supra*. Spivey discloses transmitting "topic labels" (*i.e.*, source addresses) enabling the VCD to request initiation of a selected digital content stream. *See* §§VIII.A.2.b, VIII.A.2.c, *supra*; Ex.1017 ¶¶46, 104, 179; Ex.1001 ¶196.

4. Dependent Claim 18

a. Limitations 18.0-18.1

Ellis in view of Spivey discloses this limitation. Ex.1001 ¶197. As stated above, Ellis discloses transmitting an instruction to a VCD. *See* §VIII.A.2.b, *supra*.

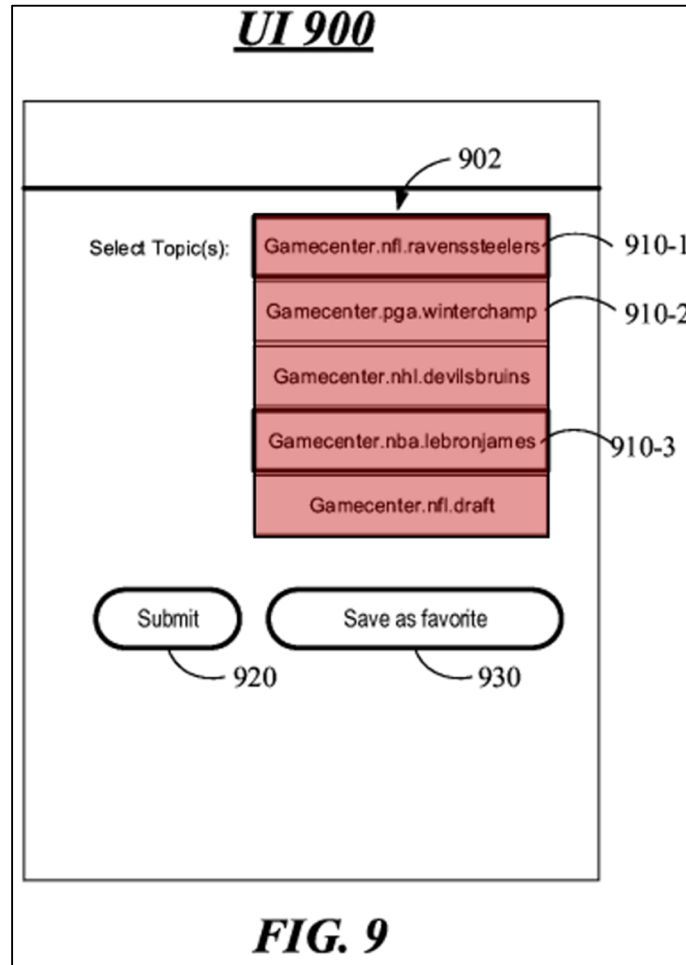
Spivey discloses receiving digital content via a video communication channel and ultimately displaying it on the VCD. *See* §VIII.A.2.b, *supra*. Spivey further discloses transmitting a first address to a media source to a VCD, enabling the VCD to request and receive a stream of digital content. The topic queues in Spivey are functionally equivalent to event sockets in that they uniquely correspond to a particular event. *See* Ex.1017 ¶66. Each topic queue can carry multiple hierarchically related addresses (or “topic labels”) corresponding not only to a particular event but also to specific aspects of the event, such as gaming information. *Id.* ¶104. When a client device subscribes to a topic queue, the MQSD pushes data from the topic queue to the subscriber via the internet. *Id.* ¶46, 179.

5. Dependent Claim 19

a. Limitations 19.0-19.1

Ellis in view of Spivey discloses this limitation. Spivey discloses a user interface “to allow the operator to select or enter the address or connection

information to a particular” MQSD.⁵ Ex.1017 ¶¶81-82. As shown below in Figure 9, the address “may resemble a uniform resource location (URL).”



Id. ¶82, Fig. 9. Each URL corresponds to a specific sporting event, such as “a National Football League (NFL) game” between the Baltimore Ravens and the Pittsburgh Steelers, “a Professional Golf Association event,” or a “National Basketball Association topic about player LeBron James.” *Id.* ¶85. VCDs use these topic label text strings to connect and subscribe to MQSD’s topic queues. See *id.*

⁵ See §VIII.A.2.b, n.7.

¶¶81-84, Fig. 9. Spivey’s “data payload” may be pushed to the subscribed connected devices that requested that topic. *Id.* ¶96; §§VIII.A.2.b, VIII.A.2.c. Furthermore, as explained above, a POSA would have understood that Ellis/Spivey’s websocket connection necessarily establishes an event information communication channel that communicatively couples the client device to the event socket. *See* §VIII.A; Ex.1017 ¶¶87, 92; Ex.1001 ¶198.

Ellis further discloses the at least one second instruction should include a first Event ID. Ellis discloses a plurality of data feeds (*i.e.*, at least one second data feed), each of which requires transmitting instructions to the VCD to initiate a stream. Ex.1016 ¶¶41, Fig. 1; *see* §§VIII.A.2.b, VIII.A.2.c, *supra*. These instructions include an Event ID. For example, to initiate a specific stream, the VCD in Ellis must select one of several “Source IDs” (*i.e.*, Event IDs), each corresponding to a video or data stream of a particular sporting event, as shown below:

220

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Tuner	Primary Source ID
1	<sourceid_2>
2	<sourceid_1>
3	<sourceid_8>
4	<sourceid_4>

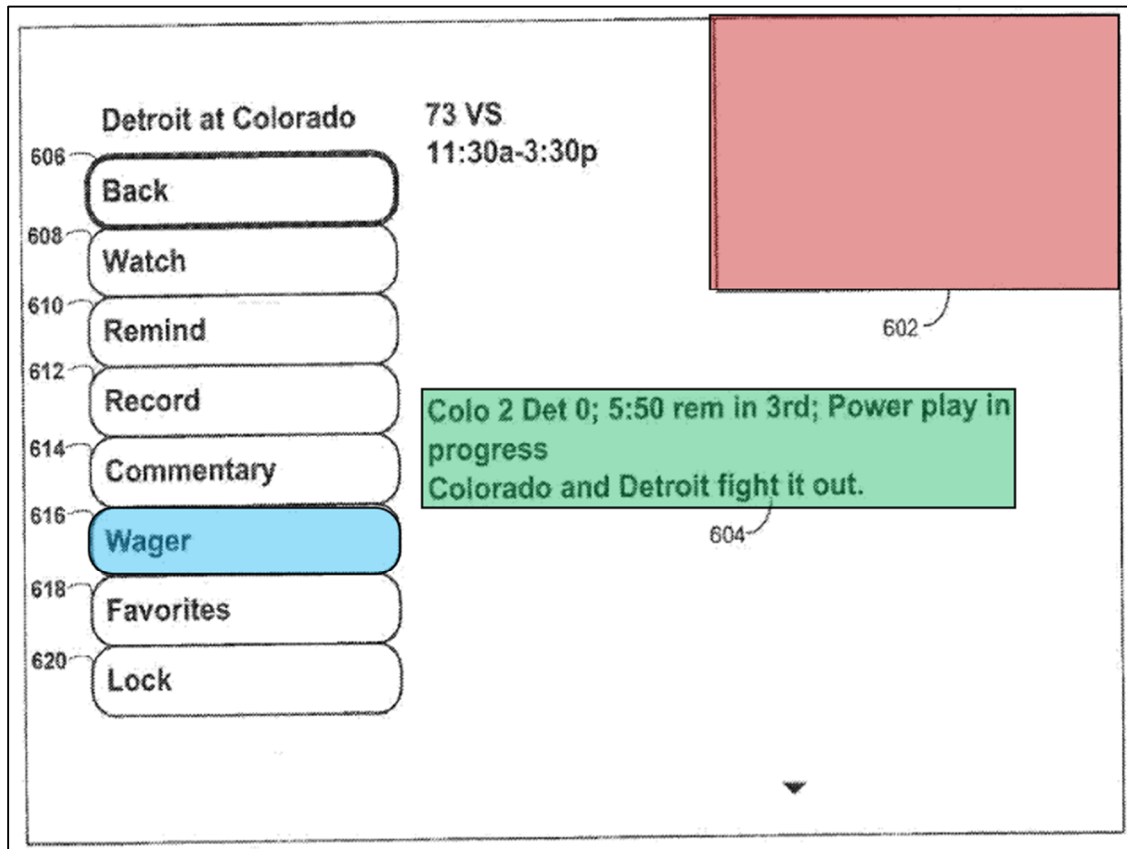
232

234

236

Source ID	Type	Profile Score
<sourceid_1>	Game	90
<sourceid_2>	Game	95
<sourceid_3>	Commentary	45
<sourceid_4>	News	75
<sourceid_5>	Movie	25
<sourceid_6>	Movie	35
<sourceid_7>	Highlights	65
<sourceid_8>	Game	80

Ex.1016 ¶¶62-63, Fig. 2B. These Event IDs enable VCDs to “tun[e] . . . to the requested media content” that is ultimately “displayed to the user.” *Id.* ¶62. Ellis discloses transmitting a second digital content corresponding to online gaming information to the VCD using the Event ID.



See §§VIII.A.2, *supra*, §VIII.A.7.a, *infra*; Ex.1016, Fig. 6, ¶93 (VCD’s “game information display screen” displays online gaming information separate from and simultaneously with a video stream).

6. Dependent Claim 20

a. Limitations 20.0-20.1

Ellis in view of Spivey discloses this limitation. See §VIII.A.5, *supra*.

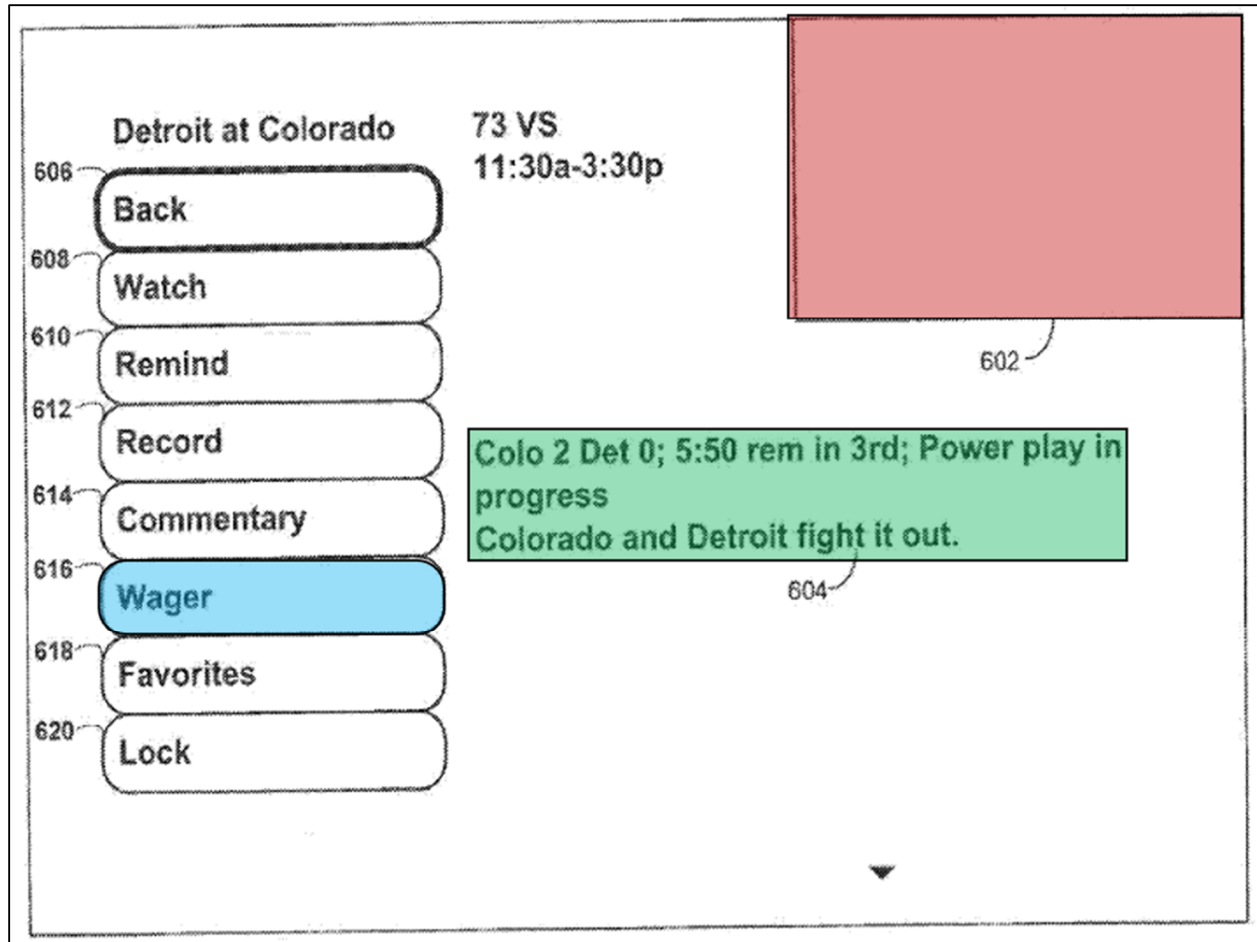
b. Limitation 20.2

Ellis in view of Spivey discloses this limitation. As explained above, the first event information communication channel between the first event socket and the first VCD is established by using the websocket protocol, which uses a persistent connection. *See* §§IV.B, VIII.A.1, VIII.A.2.c; Ex.1001 ¶202.

7. Independent Claim 21

a. Limitation 21.0

Ellis discloses transmitting instructions to a VCD to cause the display to render sporting event information. *See* §§VIII.A.2.b, VIII.A.2.c *supra*. As to rendering sports-related video and online gaming information, specifically, Ellis discloses a VCD with a “game information display screen” that simultaneously displays a sports programming video stream and online gaming information relating to the sport in the form of a wager. Ex.1016 ¶93. Figure 6, below, illustrates the VCD display:



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

b. Limitation 21.1

Ellis in view of Spivey discloses this limitation. *See* §§VIII.A.2.a, VIII.A.2.b.

c. Limitation 21.2

Ellis discloses this limitation. This limitation is substantially the same as limitation 21.0. *See* §VIII.A.7.a, *supra*. This limitation differs, however, in that it further specifies that the rendered sporting event content must be based on the first digital content received on the first communication channel. Ellis discloses this, as it generally recites a system whereby “equipment device[s] receive content in the form of signals from content source[s] . . . over communication paths 150 and 152, respectively.” Ex.1016 ¶39. As discussed above, this content is digital content relating to sports. *See* §VIII.A.2.a, *supra*.

d. Limitation 21.3

Ellis discloses this limitation. As to different communication channels, Ellis discloses this limitation for the reasons stated above. *See* §VIII.A.2.d, *supra*. As to the second digital content corresponding to the online gaming information, the VCD’s “game information display screen” in Ellis displays online gaming information separate from and simultaneously with a video stream. *See* §VIII.A.7.a, *supra*; Ex.1016, Fig. 6.

e. Limitation 21.4

Ellis discloses this limitation. This limitation is substantially the same as limitations 21.0 and 21.2. *See* §§VIII.A.7.a, VIII.A.7.c, *supra*. This limitation

differs, however, in that it further specifies that the rendered online gaming information must be based on the second digital content received on the second communication channel. As explained above, Ellis discloses a “game information display screen” that displays online gaming information separate from the video stream using a plurality of feeds. Ex.1016 ¶93, Fig. 6. Moreover, the online gaming information is transmitted to the VCD via a second feed, or communication channel, separate from the video communication channel. *Id.* ¶¶39-40.

8. Dependent Claim 22

a. Limitation 22.0

Ellis in view of Spivey discloses this limitation. As stated above, Ellis discloses transmitting an instruction to a VCD. *See* §VIII.A.2.b, *supra*.

Spivey discloses receiving digital content via a video communication channel and ultimately displaying it on the VCD. *See* §VIII.A.2.b, *supra*. Spivey further discloses transmitting a first address to a media source to a VCD, enabling the VCD to request and receive a stream of digital content. The topic queues in Spivey are functionally equivalent to event sockets in that they uniquely correspond to a particular event. *See* Ex.1017 ¶66. Each topic queue can carry multiple hierarchically related addresses (or “topic labels”) corresponding not only to a particular event but also to specific aspects of the event, such as gaming information. *Id.* ¶104. When a

client device subscribes to a topic queue, the MQSD pushes data from the topic queue to the subscriber via the internet. *Id.* ¶¶46, 179. *See also* §VIII.A.4.a.

9. Dependent Claim 23

a. Limitation 23.0

Ellis in view of Spivey discloses this limitation for the reasons stated above. *See* §VIII.A.5, *supra*; §VIII.A.15, *infra*.

10. Dependent Claim 24

a. Limitation 24.0

Ellis in view of Spivey discloses this limitation for the reasons stated above with respect to the substantially similar limitations 19.1 and 20.1. *See* §§VIII.A.5.a, VIII.A.6.a, *supra*.

b. Limitation 24.1

This limitation is substantially similar to limitation 20.2, except that this limitation recites a second communication channel between the source of the second digital content and VCD. *See* §VIII.A.6.b, *supra*. Ellis discloses such a channel for the reasons stated above. *See* §VIII.A.7.d, *supra*.

11. Dependent Claim 25

a. Limitation 25.0

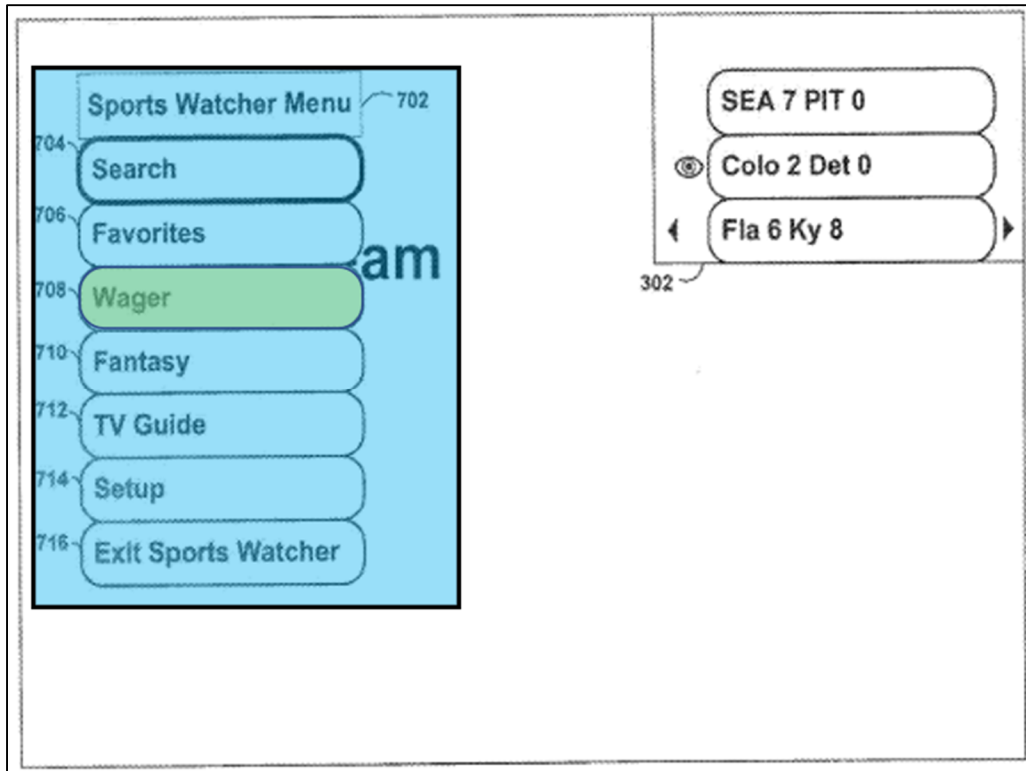
This limitation is substantially the same as limitation 21.0 and differs only in that it further recites online gaming information as interactive content. *See* §VIII.A.7.a, *supra*. Ellis discloses multiple interactive features relating to digital

content. For example, Ellis discloses a “game information window” with a “flip banner” that the user can not only toggle but customize with digital sports content. Ex.1016 ¶72. Ellis also discloses a “wager” option in the flip banner that a user can select to display a “custom wagering interface” that allows the user to “wager on the game, to modify a previous wager on the game, or to view a wager previously made on the game, including any results.” *Id.* ¶93.

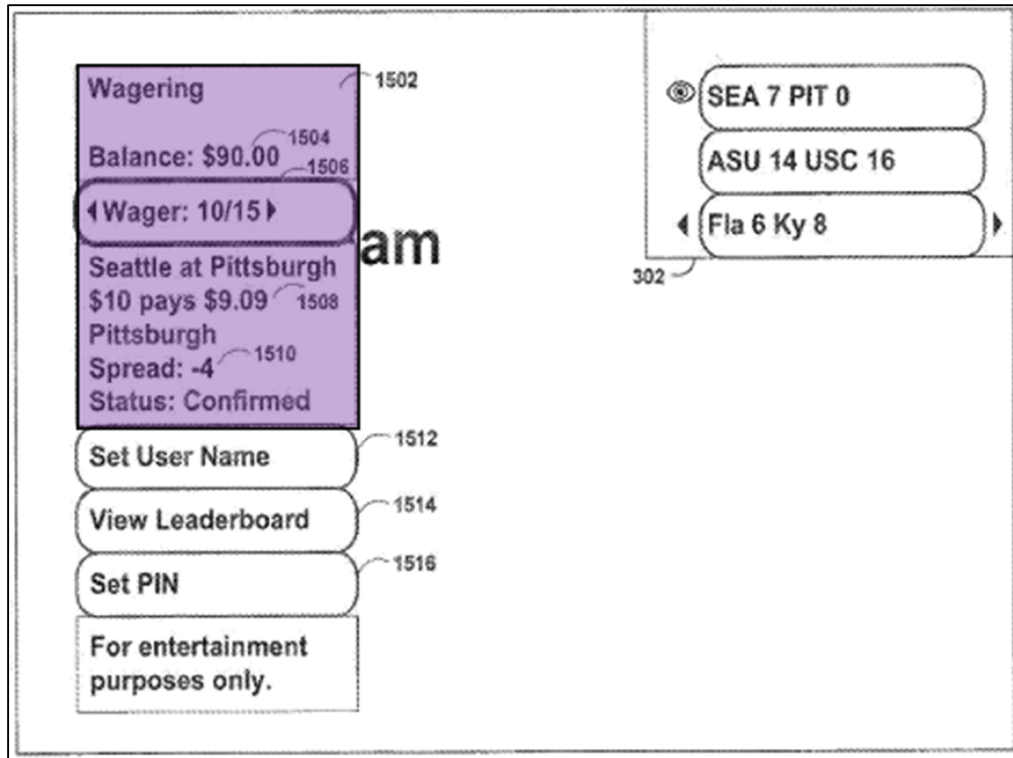
12. Dependent Claim 26

a. Limitation 26.0

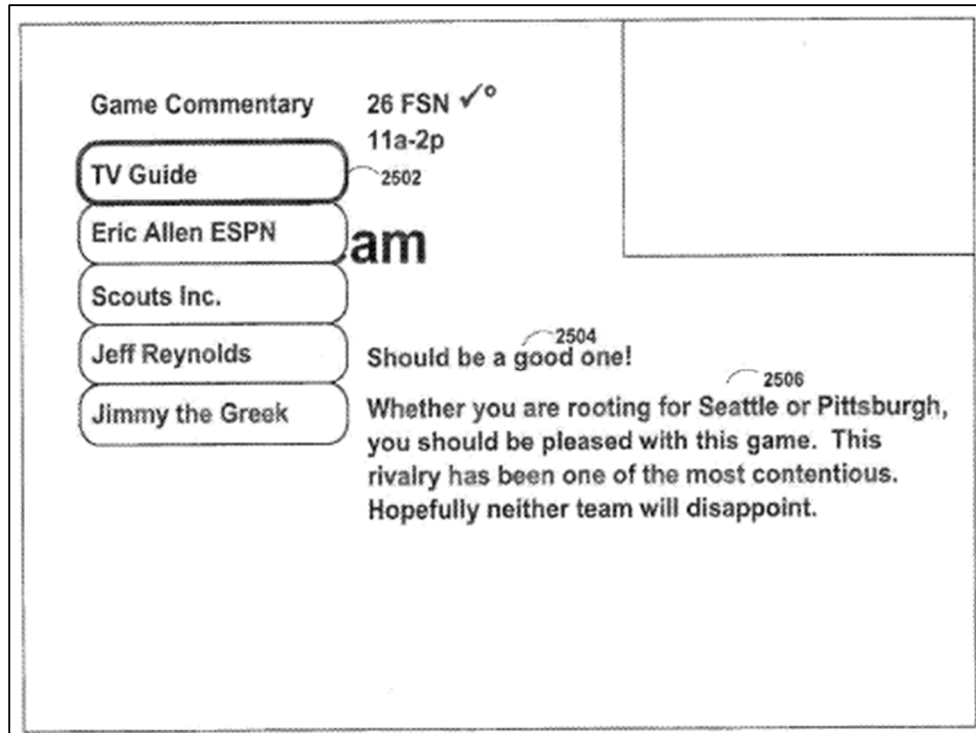
Ellis discloses this limitation. As stated above, Ellis discloses transmitting first instructions to the VCD to cause it to render information on its display when the user selects the “TV Guide” option. *See* §VIII.A.7.a, *supra*; Ex.1016 ¶103, Fig. 7. Upon selecting the “TV Guide” option, an “[interactive media guidance application main menu](#)” appears, presenting the user with several options to further engage with sporting event information. *Id.* ¶103. Fig. 7, below, illustrates the options available to the user:



Id., Fig.7. For example, “display screen 1500 (FIG.15) may be displayed after a user selects **wagering option 708**.” *Id.* ¶103. Fig. 15, displaying **wagering information** related to a first sporting event, is shown below:



Id., Fig. 15. Additionally, Ellis discloses displaying a screen that allows a user to “select any commentary option to be presented” relevant to a sporting event. *Id.* ¶132. Game commentary “may include text, graphics, video, and interactive elements (e.g., interactive playbooks, polls, and discussion forums).” *Id.* Figure 25, below, illustrates the game commentary menu:



Id., Fig. 25. By selecting any option presented above, a user can access the associated spots-related commentary. *Id.* ¶132.

13. Dependent Claim 27

a. Limitation 27.0

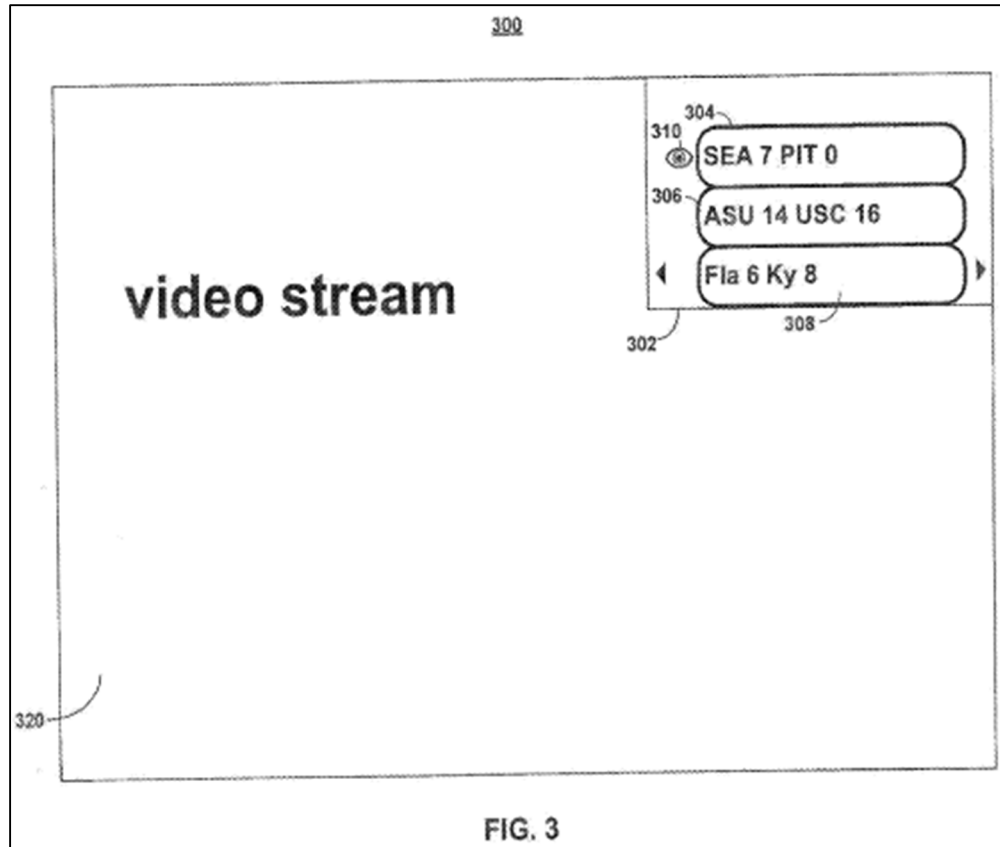
Ellis discloses this limitation. This limitation is substantially the same as limitation 21.0, differing only in that it recites a second (rather than first) set of instructions, VCD, display, and video stream. *See* §VIII.A.7.a, *supra*. This difference is inconsequential. Ellis teaches that “a plurality of real-time data feeds or streams” can operate simultaneously to provide digital content to one or several VCDs, each of which requires transmitting instructions from a media server, as explained above. Ex.1016 ¶¶11, 41, 141; *see* §VIII.A.2.d.

b. Limitation 27.1

Ellis in view of Spivey disclose this limitation. This limitation is substantially the same as limitations 16.0, 16.1, and 21.1. *See* §§VIII.A.2.a, VIII.A.2.b, VIII.A.7.b, *supra*. This limitation differs in that it recites transmitting the first digital content via a third communication channel. Ellis in view of Spivey discloses a plurality of communication channels operative to transmit digital content for the reasons stated above. *See* §§VIII.A.2, *supra*.

c. Limitation 27.2

Ellis discloses this limitation. This limitation is substantially the same as limitations 21.0 and 21.2. *See* §§VIII.A.7.a, VIII.A.7.c, *supra*. This limitation differs in that it recites rendering digital content on a second display of a second VCD rather than a first display of a first VCD, but Ellis discloses transmitting multiple videos to multiple devices, each of which may have multiple displays opened in the “sports watcher application.” Ex.1016 ¶¶39, 41, 93. Figure 3, below, illustrates how the sports watcher application window 300 overlays interactive scoreboard 302 onto the main window 320:



Id., Fig. 3.

d. Limitation 27.3

Ellis discloses this limitation. This limitation is substantially the same as limitation 21.3. *See* §VIII.A.7.d, *supra*. Ellis discloses a plurality of different communication channels facilitating digital content transmission for the reasons stated above. *See* §§VIII.A.2.d, VIII.A.7.c, VIII.A.7.d, *supra*.

e. Limitation 27.4

Ellis discloses this limitation. This limitation is substantially the same as limitation 21.4. *See* §VIII.A.7.e, *supra*. Ellis discloses rendering online gaming information on a plurality of VCD displays via a plurality of communication

channels for the reasons stated above. *See* §§VIII.A.2.d, VIII.A.7.a, VIII.A.7.c, VIII.A.7.e, *supra*.

14. Dependent Claim 28

a. Limitation 28.0

Ellis in view of Spivey discloses this limitation. This limitation is substantially the same as limitation 18.1, and differs only in that it recites a second VCD and instructions rather than a first. *See* §VIII.A.4.a, *supra*. This difference is inconsequential for the reasons stated above. *See* §VIII.A.13.a, *supra*.

15. Dependent Claim 29

a. Limitation 29.0

Ellis in view of Spivey discloses this limitation. Ellis in view of Spivey discloses transmitting instructions to a second VCD to cause it to request digital content. *See* §§VIII.A.2.a, VIII.A.2.b, *supra*. Further, Ellis discloses that these instructions can include an Event ID. For example, to initiate a specific stream, the VCD in Ellis must select one of several “Source IDs” (*i.e.*, Event IDs), each corresponding to a video or data stream of a particular sporting event, as shown below:

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Tuner	Primary Source ID
1	<sourceid_2>
2	<sourceid_1>
3	<sourceid_8>
4	<sourceid_4>

Source ID	Type	Profile Score
<sourceid_1>	Game	90
<sourceid_2>	Game	95
<sourceid_3>	Commentary	45
<sourceid_4>	News	75
<sourceid_5>	Movie	25
<sourceid_6>	Movie	35
<sourceid_7>	Highlights	65
<sourceid_8>	Game	80

Ex.1016 ¶¶62-63, Fig. 2B. These Event IDs enable VCDs to “tun[e] . . . to the requested media content” that is ultimately “displayed to the user.” *Id.* ¶62. Finally, Ellis discloses transmitting a second digital content corresponding to online gaming information to the VCD using the Event ID. *See* §VIII.A.7.d, *supra*.

16. Dependent Claim 30

a. Limitations 30.0-30.1

Ellis in view of Spivey discloses this limitation. Ellis discloses transmitting event information over a separate connection to user equipment. Ex.1016 ¶¶39-40, 47, Fig.1; §VIII.A.2. The real-time event information can include, for example, chat messages, advertising content, a scrollable description, live score and status updates, point spread, money line, and other wagering information, and other game-specific information. Ex.1016 ¶¶41, 72-73, 93, 126, 132, 149; Fig. 6. A POSA would have looked to Spivey to use websockets to reduce latency in the real-time data delivery of the event information. Ex.1001 ¶222.

b. Limitation 30.2

Ellis in view of Spivey discloses this limitation. This limitation is substantially the same as limitation 30.1. *See* §VIII.A.16.a, *supra*. This limitation differs, however, in that it recites a second real-time information, VCD, and information communication channel. Ellis covers these differences, as it discloses transmitting video broadcasts over one communication path while the supplemental content source provides “game summary information, . . . and any other sports-related information” to “any suitable number of users” via another communication path. Ex.1016 ¶¶39-41.

c. Limitation 30.3

Ellis discloses this limitation. Ellis teaches that users may “leave feedback regarding the commentary that other users in the media system may view when they access the same commentary [that] . . . may include... video.” *Id.* ¶132. Ellis also teaches that to “create and send a message (e.g., instant message or email message), the user may select send message option.” *Id.* ¶126. As to advertising content, Ellis discloses a system that “provides a number of opportunities for targeted advertising.” *Id.* ¶140. This system operates not only by displaying general advertisements but also targeted advertisements “based on user preferences and user profile information.” *Id.*

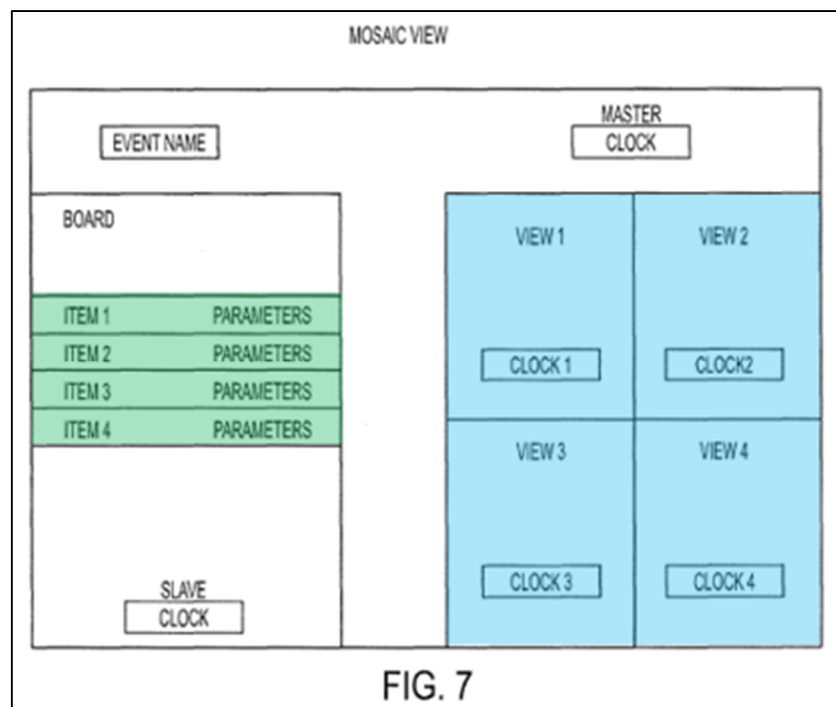
B. Ground 2A: Claims 21-22 and 27-28 Are Anticipated by Herzog

Claims 21-22 and 27-28 are anticipated by Herzog under 35 U.S.C. §102 for the reasons stated below.

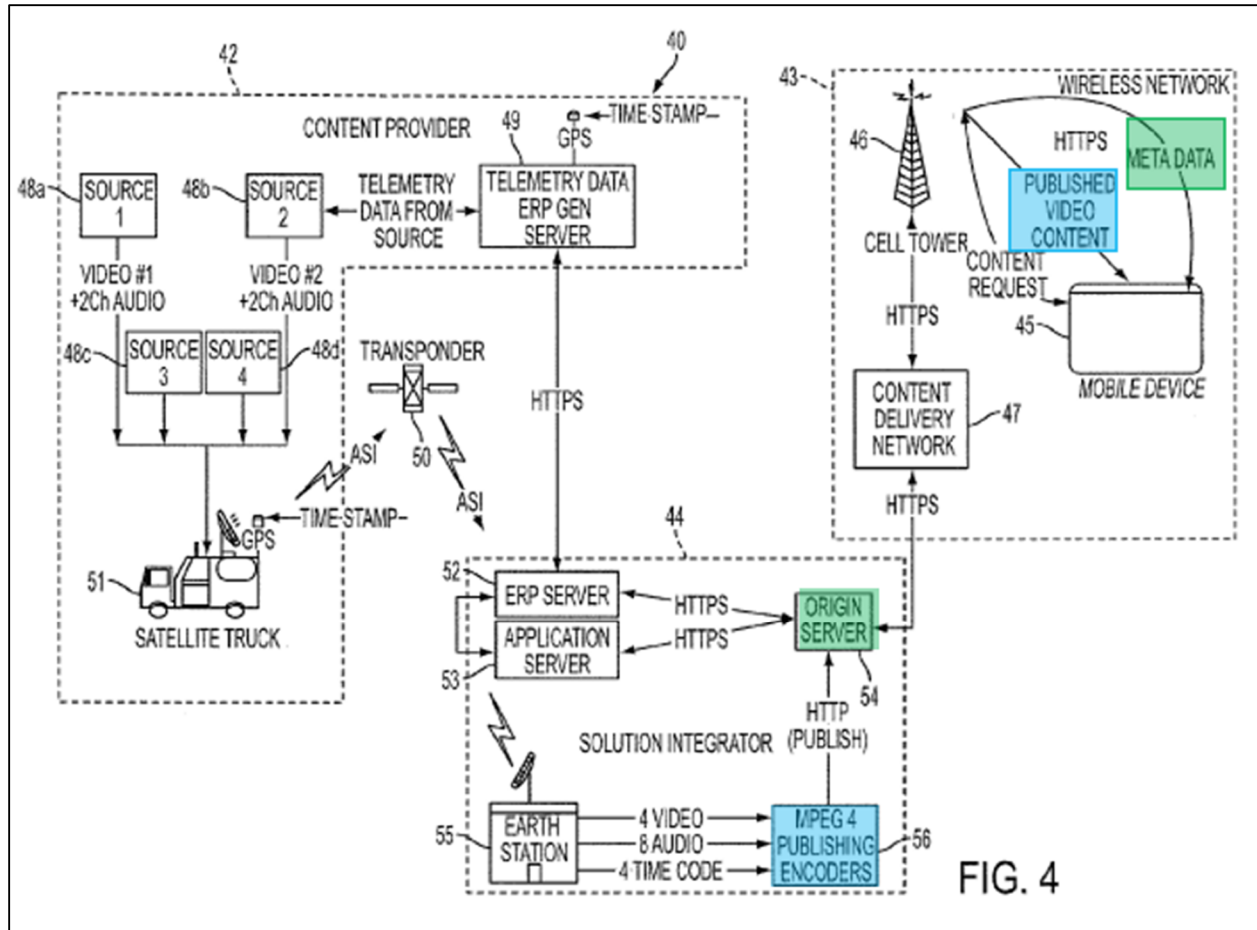
1. Independent Claim 21

a. Limitation 21.0

Herzog discloses a system and method for viewing multiple videos related to the same sporting event in addition to information about the event (meta-data). Ex.1001 ¶250. For example, Herzog's Figure 7 shows "four different **videos** of a live event and **meta-data** of multiple parameters" from which a user can select:



Ex.1015 ¶¶12, 80-81, Fig.7. Herzog provides these **video** and **data** streams over separate connections:



Id. ¶¶48-52, 67, Figs. 4, 6; Ex.1001 ¶250.

Herzog’s primary embodiment includes providing “multiple video/audio streams of race cars and drivers [*i.e.*, sources 48a-d], as they are imaged at different locations on the race track.” *Id.* ¶45, Fig 4. Herzog further contemplates streaming any sporting event. *Id.* ¶16. This system makes these video feeds available to “mobile stations” and other “similar users.” *Id.* ¶19. Each user can then request video from “one or more channels of video/audio for viewing a live event.” *Id.* ¶70. The user then “receives both the video/audio stream in an HTTPS Live Streaming (HLS)-based media streaming communications protocol.” *Id.* ¶51. Thus, Herzog provides a

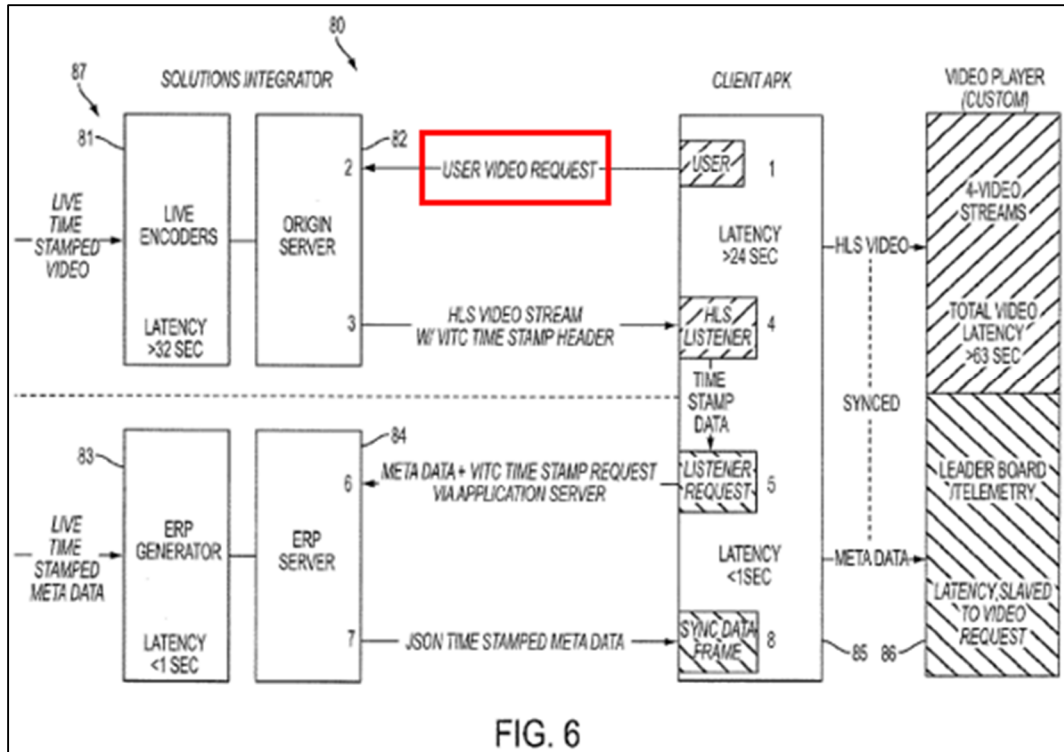
system where multiple different users can select the same, or different, live stream of digital content that relates to a live sporting event. Ex.1001 ¶251.

Herzog also provides event information germane to the sporting event. Specifically, Herzog transmits “meta-data” such as “the status of each car and driver in the race” and may include “lap number, car speed and acceleration” but there may be as many as “50 different parameters that are available.” Ex.1015 ¶45; Ex.1001 ¶252. A POSA would have understood such parameters to include online gaming information. Ex.1001 ¶252.

To the extent Herzog does not specifically describe the act of transmitting at least one instruction to the client device to cause the device to request a digital content stream, a POSA would have understood that transmitting instructions is inherent in the connection made between a client device and an origin server and/or ERP server prior to a live stream. Ex.1001 ¶253. Specifically, a POSA would have understood that instructions are necessarily transmitted to the client device during a digital handshake procedure between a client device and origin server and/or ERP server at the outset of a connection. *Id.* ¶253.

b. Limitation 21.1

As shown below in Figure 6, Herzog discloses a client device receiving digital video content relating to a sporting event on a first communication channel after making a “user video request”:



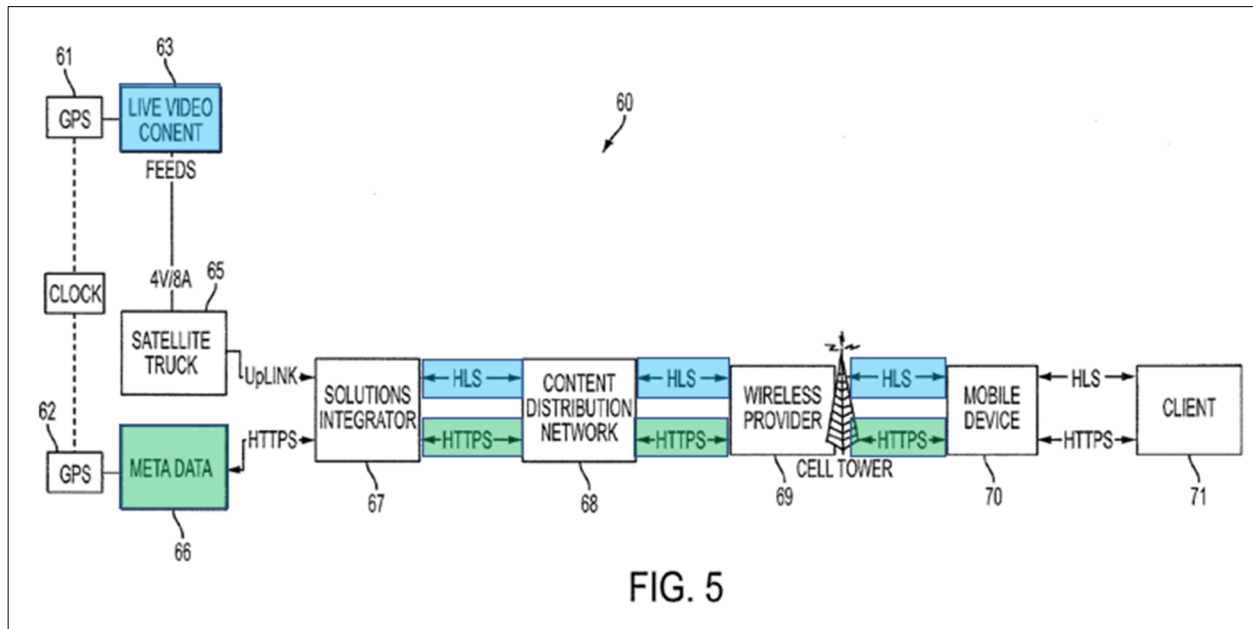
Ex.1015, Fig. 6; *see also* Fig. 7 (displaying video stream). Herzog makes clear that a client device receives such video content via a communication channel, as it discloses that “it may be desirable for a user to view video that is streamed live from the Internet to a client player using HTTP Live Streaming (also known as HLS) communications protocol.” *Id.* ¶3.

c. Limitation 21.2

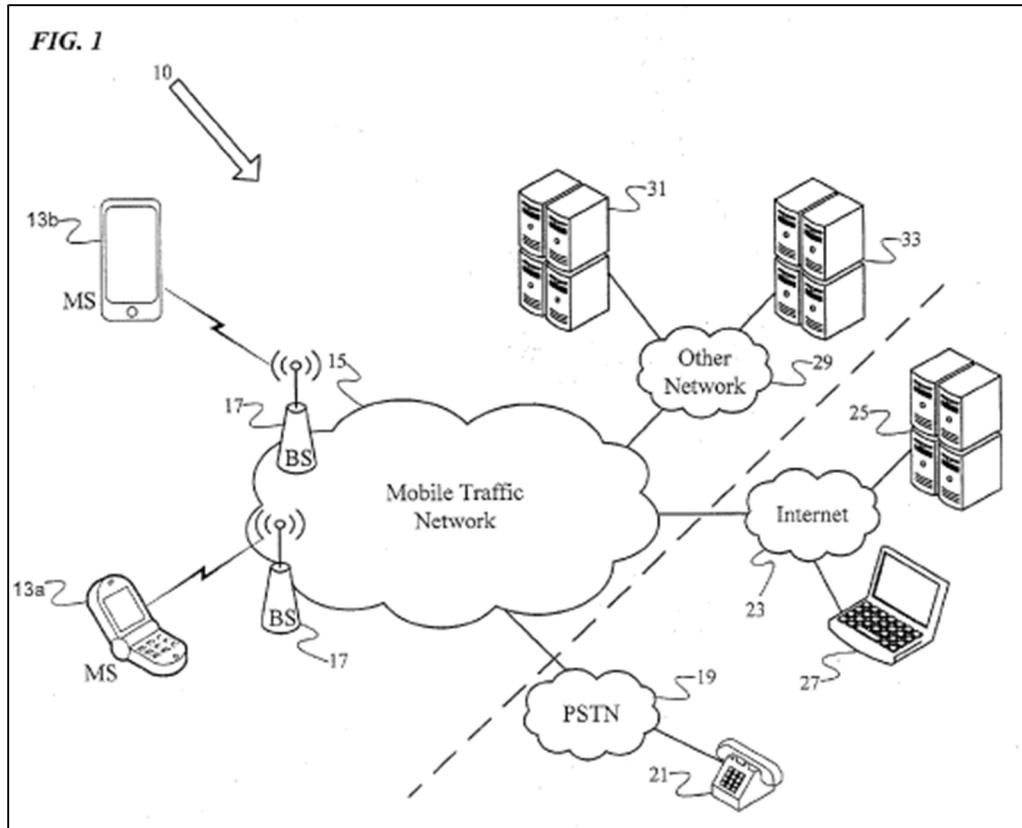
Herzog discloses this limitation for the same reasons stated above. *See* §§VIII.B.1.a, VIII.B.1.b, *supra*.

d. Limitation 21.3

Herzog discloses providing **event information** over a separate communication path than the **video signal** where there is “a unique video and meta-data source that do not follow the same path of transmission” in Figure 5, below:



Ex.1015 ¶¶47-51, 83, Figs. 1, 4, 6. Herzog further discloses that “[a]s part of the synchronization service, server 25 may provide one type of data, for example, audio and video data of a live event; a second type of data for example, meta-data of the same event, may be provided by server 31. Both types of data may flow to a mobile device 13b through one or more networks, for example, network 29, Internet 23 and/or mobile traffic network 15.” *Id.* ¶27. Figure 1 is shown below:



Id. Fig. 1.

e. Limitation 21.4

Herzog discloses this limitation for the reasons stated above. *See* §§VIII.B.1.a, VIII.B.1.b, *supra*.

2. Dependent Claim 22

a. Limitation 22.0

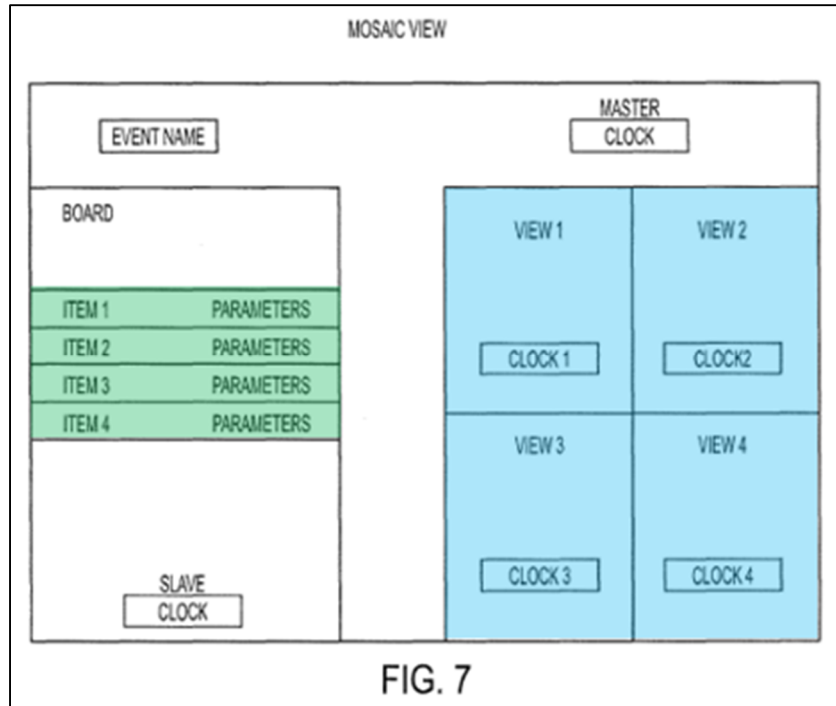
Herzog discloses a server address, albeit indirectly, when describing the type of content a client device may store. *Id.* ¶35 (“The memories 114, 116 also store various data, such as telephone numbers and server addresses . . .”). To the extent Herzog does not explicitly reference a media source address, a POSA would have

understood that the system in Herzog necessarily requires such an address to stream digital content corresponding to the online gaming information from the media source to the client device. Ex.1001 ¶258. Specifically, a POSA would have understood that Herzog's HTTPS communication format uses the Transmission Control Protocol (TCP), which in turn uses the Internet Protocol (IP). Ex.1001 ¶258. These protocols require an IP address (*i.e.*, Internet address such as 130.24.20) to designate the location from which client devices can receive requested digital content. Ex.1001 ¶258.

3. Dependent Claim 27

a. Limitation 27.0

Herzog discloses this limitation for the reasons stated above. *See* §VIII.B.1, *supra*. Herzog further discloses a plurality of communication channels carrying [video content](#), as shown below in Figure 7:



Ex.1015, Fig. 7, ¶80 (“Referring now to FIG. 7, an example of a mosaic view on a video player is shown, which includes four views of four respective channels of live video of an event . . . If desired, fewer than four views may be selected by the user, although more views/videos may be available.”).

b. Limitation 27.1

Herzog discloses this limitation for the reasons stated above. *See* §VIII.B.1.b, *supra*.

c. Limitation 27.2

Herzog discloses this limitation for the reasons stated above. *See* §§VIII.B.1.c, VIII.B.1.e, VIII.B.3.a, *supra*.

d. Limitation 27.3

Herzog discloses this limitation for the reasons stated above.

See §§VIII.B.1.d, VIII.B.3.a, *supra*.

e. Limitation 27.4

Herzog discloses this limitation for the reasons stated above.

See §§VIII.B.1.e, VIII.B.3.a, *supra*.

4. Dependent Claim 28

a. Limitation 28.0

Herzog discloses this limitation for the reasons stated above.

See §§VIII.B.2.a, VIII.B.3.a, *supra*.

C. Ground 2B: Claims 25-26 and 30 Are Obvious Over Herzog in View of Ellis

1. Motivation to Combine

Herzog discloses claims 21 and 27 substantially as claimed. *See* §§VIII.B.1, VIII.B.3. To the extent Herzog does not disclose interactive content and/or a real-time information stream, a POSA would have been motivated to integrate such features into Herzog, in view of Ellis. Ex.1001 ¶¶132-141.

a. Real-time Information

As explained, Herzog discloses a system providing video streams and event information streams to multiple users. *See* §VIII.B.1. To the extent Herzog does not disclose a third stream, the real-time information stream of claim 30, a POSA would

have found it obvious to implement such a stream into Herzog, in view of Ellis. Ex.1001 ¶¶132-133.

As set forth above, Ellis discloses a similar content delivery system configured to delivery live video and data over separate channels. *See* §VIII.A. Ellis further teaches that its system is configured to transmit chat information. Ex.1016 ¶132 (users “may also leave feedback regarding the commentary that other users in the media system may view when they access the same commentary.”). A POSA would have understood that Ellis discloses a system that transmits and receives first/second real-time information, such as chat information, regarding the first/second live stream of digital content. Ex.1001 ¶134; *see also* Ex.1016 ¶126 (“To create and send a message (e.g., instant message or email message), the user may select send message option.”).

Ellis provides this information on a separate channel to users. Ellis discusses transmitting the video “broadcasts” over communication path 150 and “game summary information, ... and any other sports-related information” over communication path 152. Ex.1016 ¶41; *see* §VIII.A.2.d. Ellis provides that in “some embodiments, this sports-related information is provided to user equipment 102 as a plurality of real-time data feeds.” Ex.1016 ¶41. Thus, a POSA would have understood that Ellis teaches transmitting via a first real-time information Internet

communication channel between a real-time information socket of the at least one socket server and the first VCD of the first/second plurality of VCDs. Ex.1001 ¶135.

A POSA would have been motivated to integrate Ellis’s additional real-time information apparatus into Herzog’s system. Ex.1001 ¶135.

A POSA would have been motivated to combine Ellis with Herzog because Ellis builds on Herzog’s functionality by explicitly disclosing providing more content options, *e.g.*, real-time information, such as chat information or advertising content, to a content distribution system such as Herzog: “[C]ontent source 130 may be any suitable source of media content, such as ... [an] Internet or network media/webserver, or any other ... system for originating and distributing ... content to user equipment 102” that provides “broadcast programming” and “sporting events.” Ex.1016 ¶39-41, 62, Fig. 1, 2B; Ex.1001 ¶136. Moreover, a POSA would have understood that users would enjoy the interactive aspect Ellis’s real-time information stream would offer. Ex.1001 ¶136.

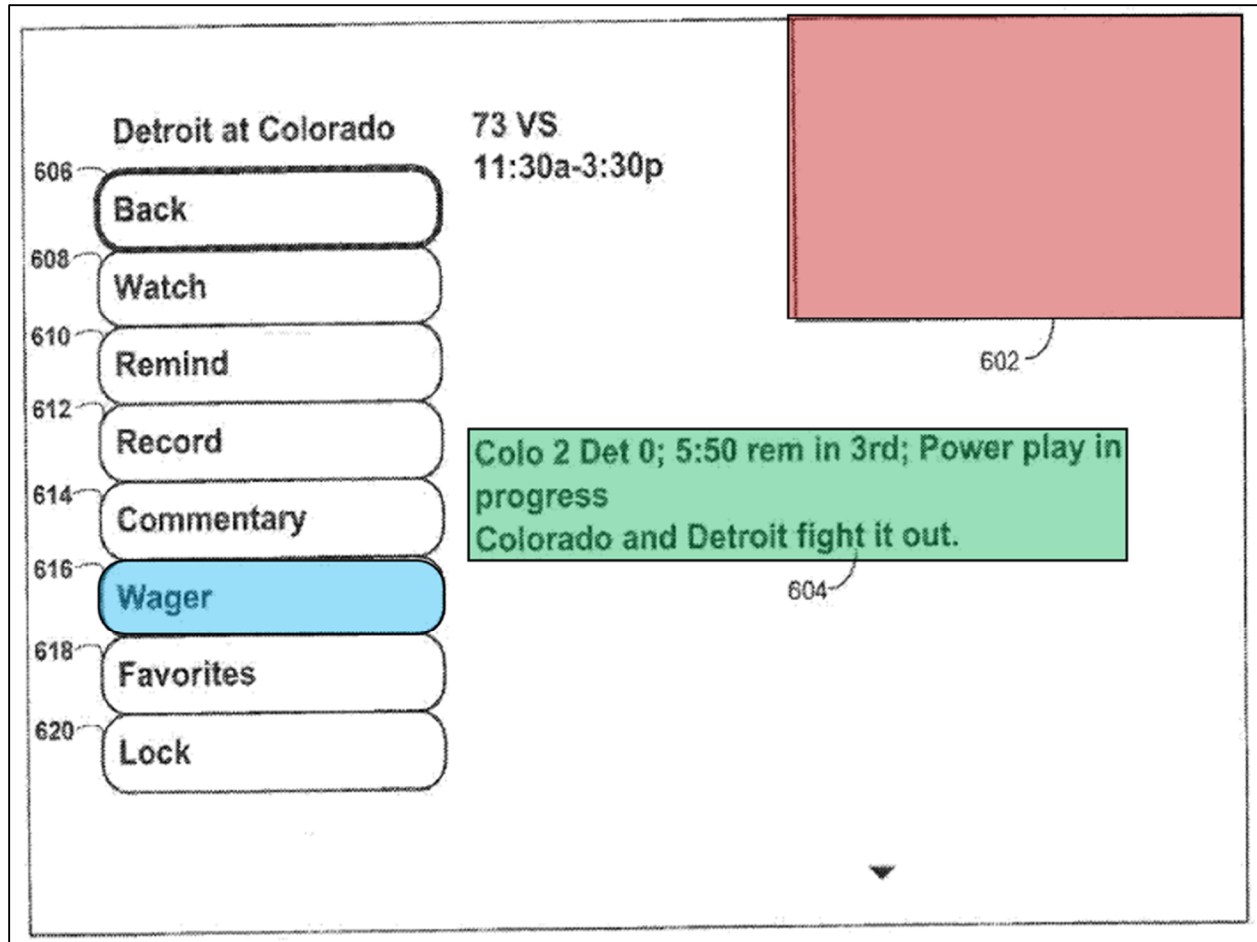
For a POSA, adding an additional real-time information stream to a system such as Herzog (among other content types), which already provides multiple live streams to clients, applies a known technique to a known device that was ready for improvement to yield a predictable result. Ex.1001 ¶137. A POSA would have had a reasonable expectation of success because Ellis specifically contemplates being implemented in a digital content delivery system such as Herzog, stating that it can

be used with “any suitable source of media content,” which includes IPTV content “delivered on a particular network address (e.g., multicast address) on which an IP socket is currently joined.” Ex.1016 ¶¶39-40, 74; Ex.1001 ¶137.

b. Interactive Content

To the extent Herzog’s meta-data streams, and/or Herzog/Ellis’s real-time information streams, VIII.C.1.a, do not provide online gaming information as interactive content, as required by claim 25, it would have been obvious to do so in view of Ellis.

Ellis discloses multiple interactive features relating to digital content. Ex.1001 ¶¶138-139; Ex.1016 ¶¶72-73, 93. In Ellis, the VCD’s “game information display screen” displays online gaming information separate from and simultaneously with a video stream, as shown below in Figure 6:



Ex.1016, Fig. 6. In this embodiment, “the game itself may be displayed in **picture-in-guide (PIG) window 602**” and the online gaming information may be displayed in two different ways. *Id.* ¶93. First, the **flip banner 604** may “include additional live update data” such as “a scrollable description, live score and status updates, point spread, money line, and other wagering information, and other game-specific information.” *Id.* Second, a user can select the “**wagering option 616**” to display a “custom wagering interface” allowing the user to “wager on the game, to modify a previous wager on the game, or to view a wager previously made on the game, including any results.” *Id.* ¶98.

A POSA would have been motivated to provide Ellis's interactive feature to Herzog's meta-data stream because a POSA would have understood that users would enjoy the access to even further information about the sporting event they are interested in, as well as the ability to customize the information they wish to see. Ex.1001 ¶¶140-141. A POSA would have also appreciated that users would want to be able to place wagers directly from the device. *Id.*

A POSA would have had a reasonable expectation of success in implementing Ellis's interactive feature into Herzog because Herzog already enables the flow of meta-data to users. Ex.1001 ¶141. A POSA would have understood that taking Herzog's meta-data stream a step further to allow users to interact with the meta-data would have required only minor programming adjustments that were well within the skill of a POSA. *Id.*

2. Dependent Claim 25

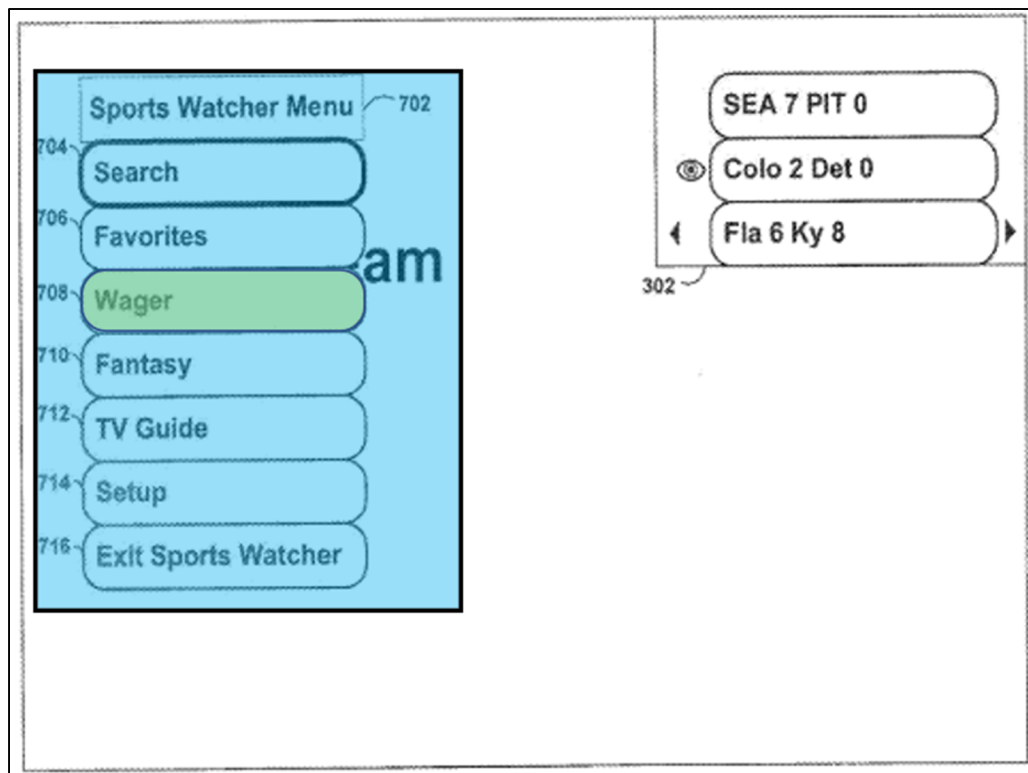
a. Limitation 25.0

Herzog in view of Ellis discloses this limitation. Herzog discloses causing a client device to render online gaming information in its display. *See* §VIII.B.1.a, *supra*. Ellis discloses multiple interactive features relating to digital content, as explained above. *See* §VIII.C.1.

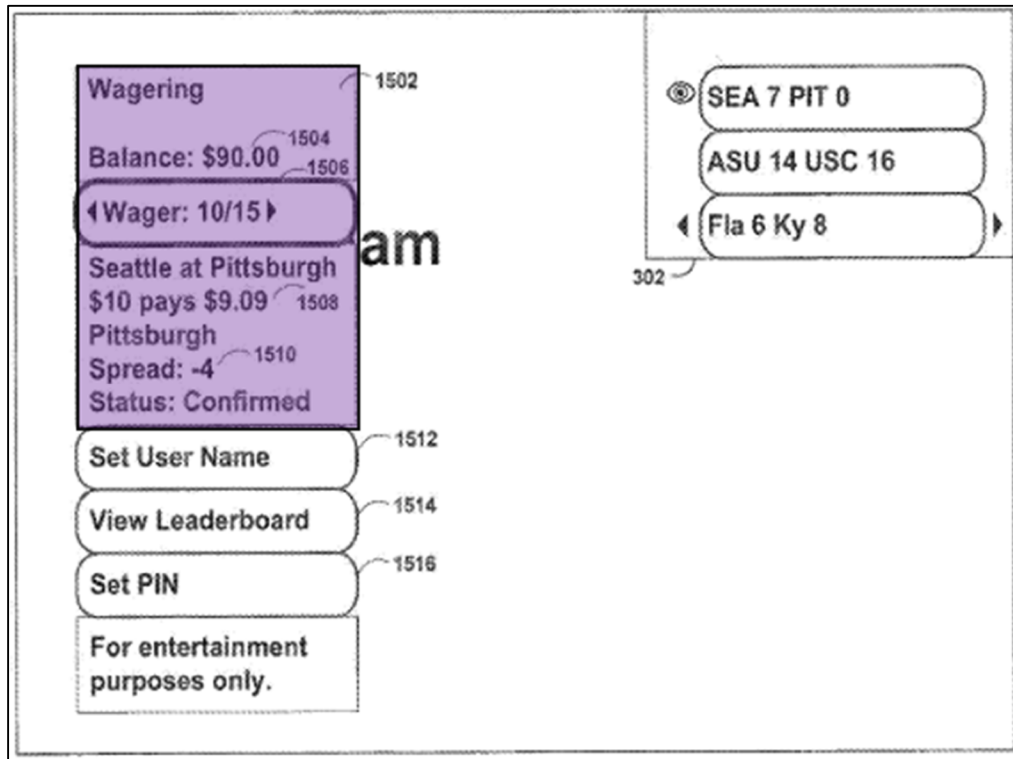
3. Dependent Claim 26

a. Limitation 26.0

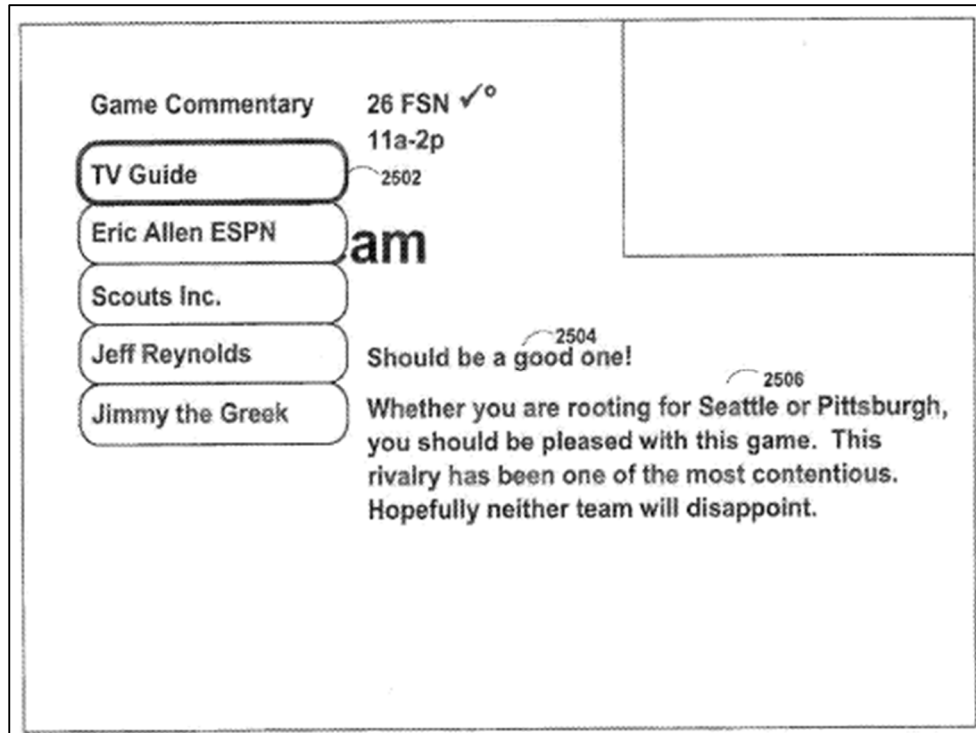
Herzog in view of Ellis discloses this limitation. *See* §VIII.C.1, *supra*. Herzog discloses causing a client device to render digital content in its display. *See* §VIII.B.1.a, *supra*. Ellis similarly discloses transmitting instructions to the client device to cause it to render information on its display when the user selects the “TV Guide” option. Ex.1016 ¶103, Fig.7. Upon selecting the “TV Guide” option, an “interactive media guidance application main menu” appears, presenting the user with several options to further engage with sporting event information. *Id.* ¶103. Figure 7, below, illustrates the options available to the user:



Id., Fig. 7. For example, “display screen 1500 (FIG. 15) may be displayed after a user selects **wagering option 708**.” *Id.* ¶103. Figure 15, displaying **wagering information** related to a first sporting event, is shown below:



Id., Fig. 15. Additionally, Ellis discloses displaying a screen that allows a user to “select any commentary option to be presented” relevant to a sporting event. *Id.* ¶132. Game commentary “may include text, graphics, video, and interactive elements (e.g., interactive playbooks, polls, and discussion forums).” *Id.* Figure 25, below, illustrates the game commentary menu:



Id., Fig. 25. By selecting any option presented above, a user can access the associated spots-related commentary. *Id.* ¶132.

4. Dependent Claim 30

a. Limitations 30.0-30.1

Herzog in view of Ellis discloses this limitation for the reasons stated above.

§§VIII.C.1.a, VIII.B.1, *supra*.

b. Limitation 30.2

Herzog in view of Ellis discloses a plurality of real-time information communication channels for the reasons described above. *See* §§VIII.B.1, VIII.B.3, *supra*.

c. Limitation 30.3

Herzog in view of Ellis discloses this limitation. *See* §§VIII.C.1, VIII.B.1.a, *supra*.

D. Ground 2C: Claims 16-20, 23-24 and 29 Are Obvious Over Herzog in View of Spivey

1. Motivation to Combine

As set forth above, Herzog discloses the '218's functionality—providing video and data related to a sporting event over separate connections. *See* §VIII.B, *supra*.

Herzog does not specifically disclose some backend server architecture supporting the data distribution—the claimed socket server. Ex.1001 ¶¶125-126. However, a POSA would have known that the websocket client-server communication protocol employed by Spivey was an alternative to the HTTP polling used by Herzog. *Id.*; §IV. A POSA would have found it obvious to implement Herzog's Origin Server as a websocket server, as taught by Spivey, to achieve full-duplex communications between a client and a remote host with low latency. Ex.1001 ¶126 (citing Ex.1046).

As noted above, *see* §VIII.A.1, a POSA would have understood that socket servers were well-known components for implementing real-time data delivery, such as in Herzog, with reduced latency. Ex.1001 ¶127; §IV, *supra*; Ex.1017 ¶¶35, 96. A POSA also would have appreciated the benefits associated with Spivey's MQSD

(i.e., “socket server”) which establishes websocket connections with client devices, including convenient and efficient full-duplex communications between a client and a remote host with low latency. Ex.1017 ¶¶27-28, 43, 61, 74, 92, 96; Ex.1001 ¶127 (citing Ex.1046); §IV.B. A POSA, looking to improve Herzog’s latency issues, would have looked to implement a system such as Spivey. Ex.1001 ¶127.

A POSA would have done so by incorporating Spivey into Herzog’s current data delivery system by implementing Spivey’s MQSD at Herzog’s Origin Server to achieve a predictable result of decreased latency data delivery. *See* Ex.1015 ¶¶50-51, Fig. 4; Ex.1017, Fig. 4; Ex.1001 ¶128. The combined system would maintain Herzog’s video content delivery system and upgrade the data delivery system to reduce latency. Ex.1001 ¶128.

A POSA would have been motivated to combine Herzog with Spivey for many of the same reasons that a POSA would have been motivated to combine Ellis with Spivey. Ex.1001 ¶129. First, Herzog and Spivey relate to the same technical subject matter—content delivery for real-time events. *See* Ex.1017, Abstract; Ex.1015, Abstract. Both references describe methods and/or systems for streaming video and/or event data to one or more users, such that video and/or event data are transmitted simultaneously. *See, e.g.,* Ex.1017, Abstract; Ex.1015, Abstract; Ex.1001 ¶129. Second, the references solve the same or similar problems, namely,

providing video and/or event data to multiple users over the Internet quickly. *See, e.g.,* Ex.1017 ¶27; Ex.1015 ¶¶3, 19, 51.

A POSA would have had a reasonable expectation of success in combining Herzog with Spivey because Spivey contemplates being implemented in a digital content delivery system such as Herzog, stating that it can be used with “any well-known communication techniques and protocols, such as techniques suitable for use with packet-switched networks (e.g., public networks such as the Internet, private networks such as the enterprise intranet, and so forth)” Ex.1017 ¶155; Ex.1001 ¶130.

A POSA would have been motivated to combine Herzog with Spivey because Spivey provides a complementary solution describing the details of the backend architecture for organizing and transmitting event data to multiple users. Ex.1017, Abstract; Ex.1001 ¶130.

Combining 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. Ex.1001 ¶131. Herzog encourages this flexibility, stating that it encourages “modifications ... in various forms and examples, and that the teachings may be applied in numerous applications.” Ex.1015 ¶90. To a POSA, it would have been obvious to substitute any of Herzog’s meta-data distribution elements with any combination of Spivey’s LDS, MQSD, and/or

Live Data Source(s), which are similarly involved in transmitting live event data to users and may be configured in any manner. *See* Ex.1017 ¶34; Ex.1001 ¶131.

2. Independent Claim 16

a. Limitation 16.0

Herzog discloses this limitation for the reasons stated above. *See* §VIII.B.1.a, *supra*.

b. Limitation 16.1

Herzog discloses this limitation for the reasons stated above. *See* §§VIII.B.1.a, VIII.B.1.b, *supra*.

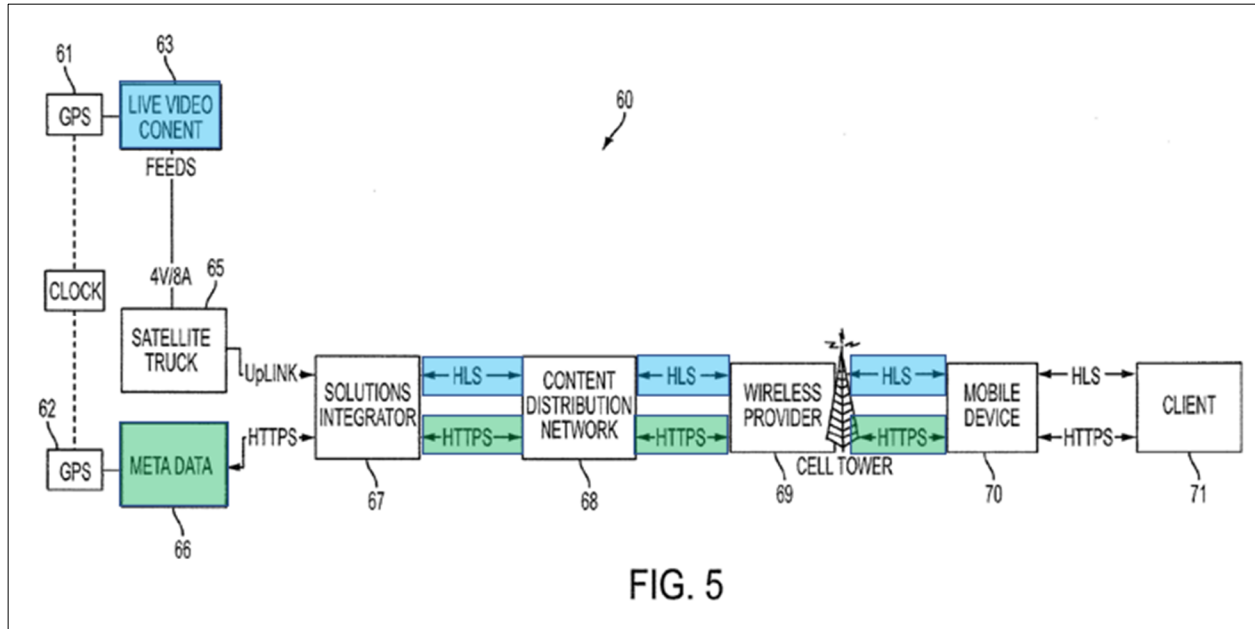
c. Limitation 16.2

- i. Transmitting at least one second instruction to the first VCD to receive the first online gaming information via a first event information communication channel between a first event socket of at least one socket server and the first VCD

Both Herzog and Spivey disclose transmitting the first online gaming information to the VCD. For example, in Spivey, the MQSD “may push data from topic queues ... to the subscribers of the topics corresponding to those topic queues.” Ex.1017 ¶46. In Herzog, the Origin Server may be configured to transmit “the meta-data to the content delivery network 47,” which the user receives “in an HTTPS communications protocol.” Ex.1015 ¶51. A POSA would have known that the

websocket client-server communication protocol employed by Spivey was an alternative to the HTTP polling used by Herzog. Ex.1001 ¶302; §IV.

Herzog in view of Spivey discloses providing online gaming information over a separate internet communication channel. Spivey’s entire system is based on providing “live event data in real time.” Ex.1017, Abstract. The MQSD can be an “internet server.” *See id.* ¶35. Spivey communicates with client devices over “any ... combination of wired and/or wireless networks including ... the Internet.” *Id.* ¶179. For example, client devices “may request and participate in a websocket connection,” which “typically comprises a two-way connection between two entities.” *Id.* ¶¶43, 61. Moreover, consistent with Spivey, Herzog discloses providing **event information** over a separate communication path than the **video signal** where there is “a unique video and meta-data source that do not follow the same path of transmission.”



Ex.1015 ¶¶47-51, 83, Figs. 1, 4, 6. Thus, a POSA would have understood Spivey to disclose transmitting online gaming information via a separate internet connection.

Ex.1001 ¶303.

Further, this information is provided via a connection between a topic queue and the VCD. Users can access the MQSD using a URL. *See* Ex.1017 ¶¶81-82. Then, the user can access the specific topic queue they wish to receive information from by using a text string, *e.g.*, a topic label or Event ID, associated with a topic queue. *Id.* ¶179, Fig. 9 (“Gamecenter.nfl.ravenssteelers.”). Thus, a POSA would have understood that Herzog in view of Spivey discloses distributing online gaming information from a socket to a user device over an internet connection. Ex.1001 ¶304. Further, a POSA would have understood that the internet connection is established using a URL and text string identifying a uniquely addressable

communication endpoint on the MQSD, where first event information is transmitted to a VCD. Ex.1001 ¶304.

As established above, Herzog in view of Spivey discloses transmitting instructions to a VCD to cause it to receive online gaming information. *See* §§VIII.B.1, VIII.B.3.a, *supra*; *see also* §VIII.A.2.c (inherent).

ii. First event socket of at least one socket server

Herzog in view of Spivey discloses a first event socket of a socket server. *See* §§VIII.D.1, VIII.A.2.c, *supra*.

d. Limitation 16.3

Herzog discloses this limitation for the reasons stated above. *See* §VIII.B.1, *supra*.

3. Dependent Claim 17

a. Limitations 17.0-17.1

As stated above, Spivey's topic labels enable VCDs to connect and subscribe to sports-related topic queues by selecting a sporting event from a list. *See* §VIII.D.2.c, *supra*; Ex.1017 ¶¶51-52, 83-84; Fig. 9.

b. Limitation 17.2

As noted above, the VCD can use Spivey's topic labels to select "the topics available from [the MQSD] in a topic selection list[ing]" topic queues relating to various sporting events. *See* §VIII.D.2.c, *supra*; Ex.1017 ¶¶51-52, 83-84; Fig. 9. Once the VCD selects a topic label, a "topic decoder . . . use[s] the topic label to

identify a topic queue [], and may place the data payload of the topic entry into the topic queue.” *Id.* ¶49. For streaming to the VCD the data payload is then pushed from the topic queue to the VCD through the MQSD. *Id.* ¶¶65, 96, Fig. 6; Ex.1001 ¶¶194, 309; §§VIII.A.2, VIII.D.2.

c. Limitation 17.3

As noted above, after selecting a particular topic label relating to a sporting event, the VCD can “display a selection user interface element to allow the operator to select one or more topics to subscribe to.” *See* §VIII.D.2.c, *supra*; Ex.1017 ¶75; Fig. 10.

d. Limitation 17.4

Spivey discloses transmitting “topic labels” (*i.e.*, source addresses) enabling the VCD to request initiation of a selected digital content stream. *See* §§VIII.D.2.b, VIII.D.2.c, *supra*; Ex.1017 ¶¶46, 104, 179. Furthermore, a POSA would have understood that the system in Herzog in view of Spivey necessarily requires an address for the media source to stream digital content corresponding to the user’s selected sporting event from the media source to the client device. Ex.1001 ¶311; §VIII.B.2.

4. Dependent Claim 18

a. Limitations 18.0-18.1

Herzog in view of Spivey discloses this limitation. Herzog discloses transmitting instructions to a client device, causing it to receive a digital content

stream relating to a sporting event via a video communication channel. *See* §§VIII.D.2.b, VIII.B.2, *supra*. Herzog further discloses that such instructions include a media source address that the client device can use to initiate a digital content stream. *See* §VIII.D.3, *supra*. Herzog also discloses instructions causing the device to display the video related to the sporting event. *See* §VIII.B.1.a, *supra*.

5. Dependent Claim 19

a. Limitation 19.0

See §VIII.D.4, *supra*.

b. Limitation 19.1

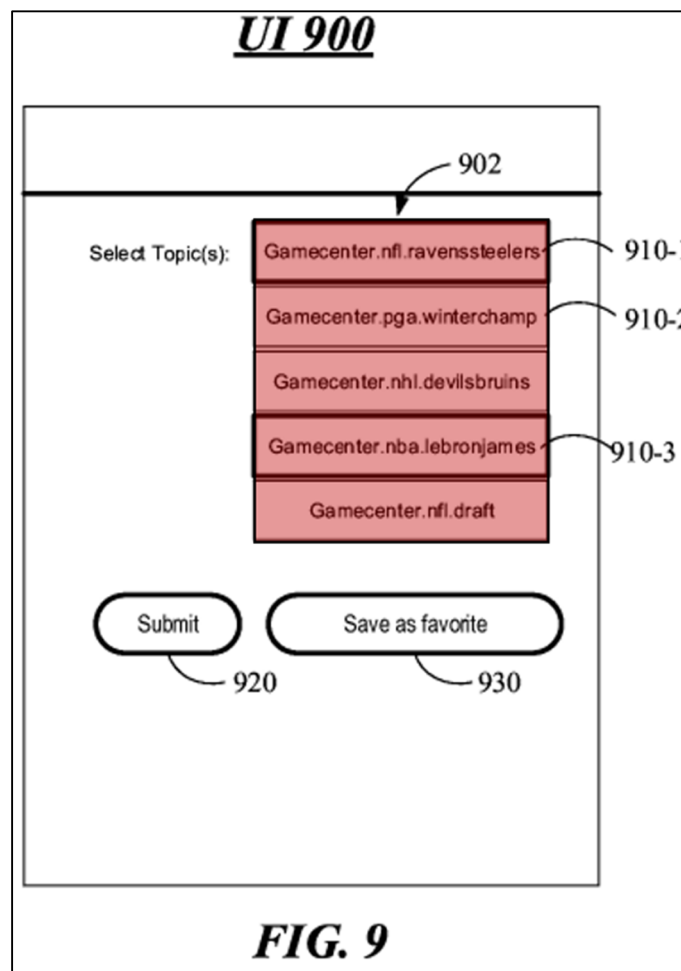
Herzog in view of Spivey discloses a socket address of an event socket. Ex.1001 ¶313. Herzog discloses a server address, albeit indirectly, when describing the type of content a client device may store. *Id.* ¶35 (“The memories 114, 116 also store various data, such as telephone numbers and server addresses”). To the extent Herzog does not explicitly reference a socket address, a POSA would have understood that the system in Herzog necessarily requires such an address to stream digital content corresponding to the online gaming information. Ex.1001 ¶313. Specifically, a POSA would have understood that Herzog’s HTTPS communication format uses the Transmission Control Protocol (TCP), which in turn uses the Internet Protocol (IP). *Id.* These protocols combine a TCP port number and IP address to form a socket address with which client devices can receive requested digital content. *Id.*

Further, in implementing Spivey, as explained above, §VIII.D.1, a POSA would have understood that Spivey's event socket contains a socket address. Ex.1001 ¶314. Spivey's WebSocket operates over HTTP through a single socket and thus requires an IP address to designate the location from which client devices can receive the online gaming information. Ex.1001 ¶314. Users can access the MQSD using a URL. *See* Ex.1017 ¶¶81-82. Then, the user can access the specific topic queue they wish to receive information from by using a text string, *e.g.*, a topic label or EventID, associated with a topic queue. *Id.* ¶179, Fig. 9 ("Gamecenter.nfl.ravenssteelers."). Thus, a POSA would have understood that Herzog in view of Spivey discloses distributing event information from an event socket to a user device over an internet connection. Ex.1001 ¶314. Further, a POSA would have understood that the internet connection is established using a URL and text string identifying a uniquely addressable communication endpoint on the MQSD, *i.e.*, the socket address, where the online gaming information is transmitted to a VCD. Ex.1001 ¶314. Thus, Spivey discloses using a URL to establish an internet connection, in which the URL contains an EventID and socket address.

6. Dependent Claim 20

a. Limitations 20.0-20.1

Spivey discloses a user interface “to allow the operator to select or enter the address or connection information to a particular” MQSD.⁶ Ex.1017 ¶¶81-82. As shown below in Figure 9, the **address** “may resemble a uniform resource location (URL)”:



⁶ See §VIII.A.2.b, n.7.

Id. ¶82, Fig. 9. Each URL corresponds to a specific sporting event and contains an Event ID, such as “a National Football League (NFL) game” between the Baltimore Ravens and the Pittsburgh Steelers, “a Professional Golf Association” winter championship, or a “National Basketball Association topic about player Lebron James.” *Id.* ¶85.

b. Limitation 20.2

Herzog in view of Spivey discloses this limitation. As explained above, the first event information communication channel between the first event socket and the first VCD is established by using the websocket protocol, which uses a persistent connection. *See* §§IV.B, VIII.A.1, VIII.A.2; Ex.1001 ¶316.

7. Dependent Claim 23

a. Limitation 23.0

Herzog in view of Spivey discloses this limitation for the reasons explained above. *See* §§VIII.D.5, VIII.D.6.

8. Dependent Claim 24

a. Limitations 24.0-24.1

Herzog in view of Spivey discloses this limitation for the reasons explained above. *See* §§VIII.D.5, VIII.D.6.

9. Dependent Claim 29

a. Limitation 29.0

Herzog in view of Spivey discloses this limitation for the reasons explained above. *See* §§VIII.D.5, VIII.D.6.

IX. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

Petitioner is unaware of any evidence of secondary considerations that have a nexus to the claimed inventions that would overcome the Petition’s showing of obviousness. Ex.1001 ¶768. Indeed, the sheer number of “[i]ndependently made, simultaneous inventions, made within a comparatively short space of time, are persuasive” “indicia of obviousness.” *Geo. M. Martin v. Alliance Machine*, 618 F.3d 1294, 1304-1305 (Fed. Cir. 2010) (quotations omitted).

X. THE BOARD SHOULD NOT EXERCISE DISCRETIONARY DENIAL

A. The ’218 Has Not Been Subject to a Prior Petition by the Current Petitioner

Furthermore, there is no “significant relationship” between the prior Petitioner (Genius) and the present Petitioner (Sportradar). *Videndum Production Solutions, Inc. v. Rotolight Limited*, IPR2023-01218, Paper 12 (April 19, 2024). *See also*, *supra* at 1; *Petitioner's Reasons for Parallel Petitions and Petition Ranking* filed concurrently herewith.

B. *Fintiv*

Evaluation of the factors under *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) and further in light of the clarifications made by the Director of the United States Patent and Trademark Office favors institution. *See* Ex.1013 USPTO Memorandum, Interim Procedure for Discretionary Denials in AIA Post Grant Proceedings with Parallel District Court Litigation, 2 (June 21, 2022) (“Director’s Memo”).

First, Petitioner has simultaneously stipulated to PO that if this IPR is instituted, Petitioner will not pursue invalidity on the specific grounds raised here or on any other ground that reasonably could have been raised in this IPR. Ex.1021; *Sotera Wireless v. Masimo*, IPR2020-01019, Paper 12 at 13-14 (P.T.A.B. Dec. 1, 2020) (precedential). Based on this stipulation alone, discretionary denial under §314(a) is not appropriate. Ex.1013, 3 (“the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB”).

Moreover, this Petition presents “compelling” arguments for unpatentability of the Challenged Claims, including a strong case for obviousness applying prior art either not of record (Herzog) or substantively considered by the Examiner (Ellis). This too weighs against the Board exercising its discretion under §314(a). *See*

Ex.1013, 4-5 (“the PTAB will not deny institution based on *Fintiv* if there is compelling evidence of unpatentability”).

For the reasons set forth above, the Board should decline to exercise its discretion to deny institution under §314(a).

C. The Presented Grounds and Argument are Dissimilar to the Art and Arguments Previously Presented to the Office During Prosecution

Section 325(d) denial would be improper because this Petition presents new prior art, ground, and arguments not previously considered by the Office during original prosecution. *Advanced Bionics v. Med-El Elektromedizinische Geräte*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020), and *Becton, Dickinson v. B. Braun Melsungen*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017). Further, to the extent that the same art was considered by the Office, the Examiner committed material error in failing to consider the prior art in combination with the previously undisclosed art contained in this Petition.

1. The Examiner Did Not Properly Consider Ellis During Prosecution

This Petition presents different art than that considered by the Examiner during prosecution. In determining whether discretionary denial is appropriate, the PTAB first looks to (i) the similarities and material differences between the asserted art and the prior art previously evaluated; (ii) the cumulative nature of the asserted art and the prior art previously evaluated; and (iii) the extent of the overlap between

the arguments made during examination and the manner of reliance on the prior art in determining whether the same or substantially the same art or arguments were presented to the office. *See Becton, Dickinson* at *6-*8; *Advanced Bionics* at *4.

Under the *Advanced Bionics* step 1 and *Becton, Dickinson* factors (a), (b), and (d) described above, Ellis was not before the Examiner during prosecution. Ellis is a continuation of U.S. Patent App. Pub. No. 2008/0062318 (“Ellis ’318”). Ellis ’318 was identified through a PCT search opinion, Ex.1011, (PCT International Search Report, Aug. 6, 2018). The search opinion categorized Ellis ’318 as an “A” reference, indicating the reference was a “document defining the general state of the art which is not considered to be of particular relevance.” *Id.*, 207. Beyond the Examiner signing an Information Disclosure Sheet listing Ellis ’318 as one of 41 references, the Examiner did not substantively address Ellis ’318 in any correspondence with the applicant, nor cite it in any rejection, prior to issuing a Notice of Allowance. As such, Ellis was not substantively “considered” during the prosecution of the ’218 and discretionary denial is inappropriate.

2. The Examiner Erred in Failing to Consider Ellis in Combination with Other Prior Art

If the above factors are met, then the PTAB must consider (i) the extent to which the asserted art was evaluated during examination; (ii) whether the petitioner sufficiently explained how the Examiner erred in evaluating the prior art; and (iii) the extent to which additional evidence and facts presented warrant reconsideration

of the prior art or arguments in determining whether the Office committed material error. See *Becton, Dickinson* at *7-*8; *Advanced Bionics* at *4.

Here, it is clear from *Becton, Dickinson* factors (c), (e), and (f) and *Applied Bionics* step 2, that the Office made a material error by not using Ellis in a rejection of any claim. Assuming, *arguendo*, that Ellis was substantively considered by the Office during prosecution, the combination of Ellis with other prior art such as Spivey and Herzog was not considered by the Office during prosecution. As shown above in Section VIII, Ellis in view of Spivey and Herzog—neither of which were before the Examiner during prosecution—renders obvious the alleged allowable subject matter. Ellis does not explicitly disclose some of the '218's backend architecture for establishing the connections with user devices and data delivery. Specifically, Ellis does not disclose the claimed control server, socket server, and webserver. However, a POSA would have found it obvious to integrate each of these known, generic components into Ellis, as taught by Spivey (the control server and socket server) and Herzog (the webserver), to implement Ellis's content delivery system with reduced latency. As such, the claimed invention is rendered obvious by Ellis in view of those two references—a combination that the Examiner never had the opportunity to consider. Even if Ellis was considered during the prosecution, the Office committed material error by mis-appreciating its significance when combined

with other art that was available at the time but not identified in the prosecution history.

XI. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests that the Board institute IPR and cancel the Challenged Claims.

Date: December 11, 2024

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

This Petition complies with the type-volume limitations as mandated in 37 C.F.R. §42.24. According to the word processing system used to prepare this document, the brief contains 13,115 (14,000 limit) words.

December 11, 2024

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CERTIFICATE OF SERVICE

In compliance with 37 C.F.R. §§42.105, 42.6(e), the undersigned hereby certifies that a copy of the foregoing Petition, supporting exhibits, and Power of Attorney were served on the 11th day of December 2024, via Federal Express® directed to PO at the correspondence address of record:

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TABLE OF EXHIBITS⁷

Exhibit No.	Description
Exhibit 1001	Declaration of Dr. Omid Kia, Ph.D.
Exhibit 1002	<i>Curriculum Vitae</i> of Dr. Omid Kia, Ph.D.
Exhibit 1003	U.S. Patent No. 10,805,687
Exhibit 1004	Claim Listing of U.S. Patent No. 10,805,687
Exhibit 1005	Reserved
Exhibit 1006	U.S. Patent No. 10,425,697
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Exhibit 1010	Claim Listing of U.S. Patent No. 11,039,218
Exhibit 1011	Certified File History of U.S. Patent No. 11,039,218
Exhibit 1012	U.S. Patent No. 11,871,088
Exhibit 1013	Director Vidal Memorandum re: <i>Sotera</i> Stipulations
Exhibit 1014	SportsCastr’s Complaint for Patent Infringement against Genius Sports
Exhibit 1015	U.S. Patent Pub. No. 2015/0163379 (“Herzog”)

⁷ Unless otherwise specified, citations are to the original page, column, and line numbers in exhibits. Brackets ([]) are used to refer to the sequential page numbers added to exhibits pursuant to 37 C.F.R. §42.63(d)(2)(i).

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Exhibit 1016	U.S. Patent Pub. No. 2014/0229992 (“Ellis”)
Exhibit 1017	U.S. Patent Pub. No. 2016/0036910 (“Spivey”)
Exhibit 1018	U.S. Patent Pub. No. 2015/0163379 (“Mitic”)
Exhibit 1019	SportsCastr’s Preliminary Infringement Contentions
Exhibit 1020	SportsCastr’s Response to Genius Sports’ First Set of Interrogatories
Exhibit 1021	Sportradar’s proposed <i>Sotera</i> Stipulation to SportsCastr
Exhibit 1022	James F. Kurose & Keith W. Ross, <i>Application Layer</i> , in Computer Networking A Top-Down Approach (Michael Hirsch et al. eds., 4th ed. 2012) (“Kurose”)
Exhibit 1023	John Dilley et al., <i>Globally Distributed Content Delivery</i> , IEEE Internet Computing (Sept.-Oct. 2002).
Exhibit 1024	Mário Marques da Silva, <i>Multimedia Communications and Networking</i> (2012) (“Silva”)
Exhibit 1025	<i>A Brief History of the Internet</i> , ONLINE LIB. LEARNING CENTER. (Feb. 9, 2024), https://www.usg.edu/galileo/skills/unit07/internet07_02.phtml (“Online Library”)
Exhibit 1026	Hisayuuki Ohmata et al., <i>Hybridcast: A new media experience by integration of broadcasting and broadband</i> , 2013 ITU Kaleidoscope: Building Sustainable Communities, April 2013 (“Ohmata”)
Exhibit 1027	Henning Schulzrinne et al., <i>RTP: A Transport Protocol for Real-Time-Applications</i> , DataTracker (January 1996), https://datatracker.ietf.org/doc/html/rfc1889 (“Schulzrinne”)
Exhibit 1028	Brijesh Kumar, <i>Making Sense of Video Streaming Protocols</i> , LinkedIn. (Aug. 11, 2016), https://www.linkedin.com/pulse/making-sense-video-streaming-protocols-dr-brijesh-kumar/ (“Kumar”)
Exhibit 1029	Ian Fette & Alexey Melnikov, <i>The WebSocket Protocol</i> , RFC Editor. (Dec. 2016), https://www.rfc-editor.org/rfc/rfc6455.html .

Exhibit 1030	Marcin Warczygłowa, <i>Real-time Web Application with Websockets and Vert.X</i> (Nov. 10, 2015), https://blog.allegro.tech/2015/11/real-time-web-application-with-websockets-and-vert-x.html .
Exhibit 1031	Randall Stewart & Chris Metz, <i>SCTP: new transport protocol for TCP/IP</i> , 5 IEEE 64, (2001) (“Stewart”)
Exhibit 1032	Lydon Ong, John Yoakum &, <i>An Introduction to the Stream Control Transmission Protocol (SCTP)</i> , Datatracker. (May. 2002), https://datatracker.ietf.org/doc/rfc3286/ (“Ong”)
Exhibit 1033	Jan Newmarch, <i>Introduction to Stream Control Transmission Protocol</i> , LINUX J. (Sep. 1, 2007), https://www.linuxjournal.com/article/9748 (“Newmarch”)
Exhibit 1034	Kyung-Hoe Kim et al, <i>A transmission control SCTP for real-time multimedia streaming</i> , 54 Computer Networks 1418, (2010) (“Kim”)
Exhibit 1035	High Scalability, <i>How Facebook Live Streams to 800,000 Simultaneous Viewers</i> , ByteByteGo (Jun. 27, 2016), https://blog.bytebytego.com/?utm_source=hs&utm_medium=ann&utm_campaign=top (“ByteGo”)
Exhibit 1036	Hardeep Singh Parmar & Michael C. Thornburgh, <i>Adobe’s Real Time Messaging Protocol</i> , Veriskope. (Dec. 21, 2002) (“Parmer”)
Exhibit 1037	Ilya Grigorik, <i>WebRTC</i> , in <i>High Performance Browser Networking</i> , (2013) (“Grigorik”)
Exhibit 1038	Sam Dutton, <i>Get started with WebRTC</i> , web.dev. (Jul. 23, 2012), https://web.dev/articles/webrtc-basics (“Dutton”)
Exhibit 1039	Andy Salo, <i>MPEG DASH: A Technical Deep Dive and Look at What’s Next</i> , RGB Networks, (2012) (“Salo”)
Exhibit 1040	Jan Ozer, <i>Upstream, Justin.tv, Livestream, and Bambuser: Streaming Unplugged</i> , Streaming Media Magazine., Jun.-Jul. 2012 (“Ozer”)
Exhibit 1041	Christopher Mueller, <i>MEPG-DASH vs. Apple HLS vs. Microsoft Smooth Streaming vs. Adobe HDS</i> , BITMOVIN. (Mar. 29, 2015), https://bitmovin.com/mpeg-dash-vs-apple-hls-vs-microsoft-smooth-streaming-vs-adobe-hds/ (“Mueller”)

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Exhibit 1042	Stefan Saroiu et al., <i>An analysis of Internet Content Delivery Systems</i> , ACM SIGOPS Operating System Review, Vol. 36 (Dec. 31, 2002), https://doi.org/10.1145/844128.844115 (“Saroiu”)
Exhibit 1043	Charles Marion & Julien Jomier, <i>Real-time Collaborative Scientific WebGL Visualization with Websocket</i> , Ass’n Computing Machinery, August 4-5, 2012 (“Marion”)
Exhibit 1044	Mark Sweney, <i>First ads appear on YouTube Clips</i> , The Guardian, Aug. 22, 2007 (“Sweney”)
Exhibit 1045	Richard Sandomir, <i>The Innovation That Grew and Grew</i> , N.Y. Times, June 12, 2014 (“Sandomir”)
Exhibit 1046	Victoria Pimentel & Bradford G. Nickerson, <i>Communicating and Displaying Real-Time Data with WebSocket</i> , 16 IEEE (2012) (“Pimentel”)
Exhibit 1047	Lucian Popa et al., <i>HTTP as the narrow waist of the future internet</i> , 2010 ACM SIGCOMM Workshop, October 2013 (“Popa”)
Exhibit 1048	Declaration of Dr. Stephen Wicker, Ph.D., dated August 22, 2024 (submitted in support of the IPR petitions in IPR2024-01305, IPR2024-01307, IPR2024-01308, IPR2024-01309, IPR2024-01310, and IPR2024-01311) (“Wicker Declaration”)
Exhibit 1049	Comparison of the Declaration of Dr. Omid Kia, Ph.D. (Ex. 1) to the Wicker Declaration (Ex. 1048)