

Genius Sports Ltd.

v.

SportsCastr Inc. (d/b/a PANDA Interactive)

December 18, 2025

Patent Owner's Presentation

IPR2024-01305

IPR2024-01307

IPR2024-01308

IPR2024-01309

IPR2024-01310

IPR2024-01311

PANDA's Three Patents


 US010805687B2

(12) **United States Patent**
April et al.

(10) **Patent No.:** US 10,805,687 B2
 (45) **Date of Patent:** *Oct. 13, 2020

(54) **SYSTEMS, APPARATUS, AND METHODS FOR SCALABLE, LOW-LATENCY VIEWING OF BROADCAST DIGITAL CONTENT STREAMS OF LIVE EVENTS, AND SYNCHRONIZATION OF EVENT INFORMATION WITH VIEWED STREAMS, VIA MULTIPLE INTERNET CHANNELS**

(71) **Applicant:** SportsCasterLIVE, New York, NY (US)

(72) **Inventors:** Kevin April, New York, NY (US); Peter Azoula, Philadelphia, PA (US); Philip Nicholas Schupak, Brooklyn, NY (US); Brian Silston, New York, NY (US)

(73) **Assignee:** SportsCasterLIVE, New York, NY (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(h) by 0 days.
 This patent is subject to a terminal disclaimer.

(21) **Appl. No.:** 16/580,552

(22) **Filed:** Sep. 24, 2019

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Related U.S. Application Data

(63) **Continuation of application No. 16/267,387, filed on Feb. 5, 2019, now Pat. No. 10,425,697, which is a (Continued)**

(51) **Int. Cl.**
 H04N 21/04 (2011.01)
 H04N 21/2187 (2011.01)
 (Continued)

(52) **U.S. CL.**
 CPC: H04N 21/6125 (2013.01); H04L 65/0076 (2013.01); H04L 65/001 (2013.01); (Continued)

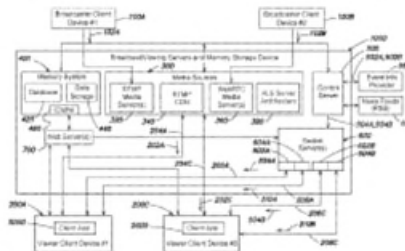
(58) **Field of Classification Search**
 CPC combination set(s) only.
 See application file for complete search history.

(56) **References Cited**
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 8,541,662 B1 12/2012 Bayett et al.
 8,549,574 B2 10/2013 Poffman et al.
 (Continued)

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 International Search Report and Written Opinion in International Patent Application No. PCT/US2017/045901 dated Oct. 30, 2019, 18 pages.
 Primary Examiner — El Hadji M Sall
 (74) **Attorney, Agent, or Firm** — Smith Raluch LLP

(57) **ABSTRACT**
 Multiple broadcasters create live streams of digital content relating to live events, and multiple viewers of each broadcaster receive copies of the live streams. Viewer latency is significantly reduced, and event information relating to live events is synchronized amongst all broadcasters and viewers of live streams relating to the same event. Scalable and flexible access to live streams is provided to different types and numbers of viewers with different qualities of service. A social media platform is provided in tandem with live streaming of digital content relating to live events, to allow a given broadcaster and their associated viewers to communicate with one another, comment on the event and/or the broadcaster's live stream and send digital gifts. In one example, the broadcasters' digital content relates to live sporting events, and studio-quality graphics and animations are provided on mobile client devices in tandem with the broadcasters' digital content and social networking functionality.

30 Claims, 56 Drawing Sheets



Genius Sports Ex. 1003
 p. 1

A technologically improved, one-to-many socket architecture delivering real-time, actionable event data synchronized with live video, solving latency and sync problems in streaming

(EX-1003)*

Demonstrative Exhibit – Not Evidence

*: Unless otherwise noted, all cites are to the record for the -1305 IPR and the '687 patent.

Benefits of the Inventions

- Conventional systems suffered from viewer latency (POR at 8 (citing EX-1003, 2:36-40).)
- Inventors sought to address *specific* problems related to latency and syncing

of approximately 10 seconds. Other technological challenges for live video streaming arising from shortcomings in conventional techniques, as recognized and appreciated by the Inventors, include, for example, the difficulties in providing relatively low latency copies of live video streams with relatively high quality (e.g., high definition HD and high bit rate, such as 2 to 5 megabits per second), synchronizing such low latency and high quality copies of a live video stream amongst multiple viewers (particularly as the number of viewers of a given live video stream significantly increases), and allowing for different classes or types of viewers to flexibly access copies of a live video stream via different live streaming formats (which may lead to different qualities of service).

(EX-1003, 2:48-56)

One exemplary problem
synchronizing high quality copies of digital content streams amongst multiple viewers—particularly *large number of viewers*—while *maintaining low latency* delivery (POR at 9 (citing EX-1003, 2:48-56).)

Benefits of the Inventions

- The Asserted Patents disclose systems and processes related to **digital content** (i.e., video) with contextually-matched **event information** (i.e., data). (POR at 10 (citing EX-1003, 4:50-5:4, 8:30-31, 9:25-67))
- The claimed inventions implement a novel **one-to-many socket** architecture (POR at 10 (citing EX-1003, 20:7-21, 21:46-62, 22:17-48))

With reference again to FIG. 2, the servers/memory storage devices 1000 further comprise one or more socket servers 600 communicatively coupled to the web server(s) 700 and the control server 500. In one aspect, the socket server(s) 600 facilitate communication, to one or more broadcaster client devices and one or more viewer client devices, of synchronized event information retrieved by the control server 500 and associated with video-based commentary relating to a particular event. In particular, one or more sockets of the socket server(s) dedicated to the particular event allow respective client devices to establish an event information channel with the socket server(s), such that the event information (e.g., in the form of “event messages”) is shared in a synchronized manner by all broadcasters/viewers following the particular event.

(EX- 1003, 20:15-21)

- This socket architecture allows **multiple** client devices to establish an **event information channel** with an “**event socket**”
- The “**event socket(s)**” may supply real-time, actionable **event information** to **each** client device that is **contextually matched** with a delivered **digital content stream** (e.g., a video stream). (POR at 10 (EX- 1003, 21:46-62, 22:17-48))
- The “**event socket(s)**” that transmit event information are **separate** from the **channel** for **content streaming**. (POR at 11 (citing EX- 1003, 21:46-62, 27:15-37))

Benefits of the Inventions

- **All** event viewers—regardless of the content stream (e.g., video) they receive—may receive synchronized event information from the **same event socket** dedicated to that event. (POR at 11 (citing EX-1003, 9:25-67, 26:60-27:14, Fig. 2, Fig. 4))
- **All** live streams across **multiple viewer client devices**, may receive **synchronized event information**, received in real time via the “event information Internet communications channel.” (POR at 11 (citing EX-1003, 22:8-16, 26:60-27:14))

In various inventive implementations disclosed herein (e.g., as introduced above in connection with FIG. 2), event information and updates to event information are provided to broadcaster client devices and viewer client devices via a socket-based “event information channel” dedicated to the event, and separate from the copy of the live stream of video-based commentary provided on a “video channel.” Thus, all viewers (and broadcasters) of the event, regardless

of which live stream they may be generating or watching, connect to one or more sockets of a socket server that is/are dedicated to the event, such that all live streams relating to the event are similarly synchronized to event information and updates to same. Notably, if a viewer switches amongst different broadcasters of the same event (the viewer originally watches a first live stream from a first broadcaster of the event, and later selects a second live stream from a second broadcaster of the same event), the event information and updates to same (and any screen animations and special effects graphics that incorporate the event information) remain synchronized with all live streams from the different broadcasters, providing for a smooth second-screen experience across multiple broadcasters and viewers.

(EX- 1003, 26:60-27:14)

Benefits of the Inventions

- Using this novel socket architecture and paired content stream enables the claimed invention to leverage real time communication protocols in **a distributed network** to deliver high-quality, low-latency copies of certain content streams **to multiple viewers, each** of whom is receiving **synchronized event information**. (POR at 12 (citing EX-1003, 26:60-27:37))
- The single control server as the “single point of entry:”

tasy providers, and players). This single point of entry of event information into the server architecture, as provided by the control server, prevents synchronization errors inherent in network communications. Once a change in event status has been detected (e.g., if a play clock updates), the control server provides these changes to the one or more sockets dedicated to the event (to which all viewers and broadcasters of video-based commentary regarding the event are communicatively coupled), resulting in a single synchronized update to all client devices and thereby significantly mitigating client-by-client latency and/or synchronization issues.

(EX- 1003, 27:15-37)

Benefits of the Inventions

The District Court's description of the inventions:

These patents concern the problem of latency in live streaming. For example, the patents identify video streaming platforms with latency of up to 15 seconds from when the streaming content is generated and the stream is available to a viewer. ('697 Patent at 2:31–34.) The patents also identify problems in providing “low-latency copies of live videos streams with high quality,” and synchronizing those copies among multiple viewers. (*Id.* at 2:40–44.)

According to PANDA, the patents “disclose[] systems and processes related to delivering video with contextual-matched event information.” (Patent Owner's Prelim. Resp., Dkt. No. 167-4 at 8.) “[T]he claimed inventions implement a novel, technologically improved, one-to-many socket architecture.” (*Id.*) “This socket architecture allows multiple client devices to establish an event information channel with an ‘event socket,’ which may supply real-time, actionable event information to each client device that is contextually matched with a delivered video stream.” (*Id.* at 8.) “Because all viewers of the broadcast may receive the same synchronized information via the same event socket, each viewer client device may be capable of receiving the same information, at generally the same time, in real-time, regardless of video transmission protocol.” (*Id.* at 9.)

(C.A. No. 2:23-CV-00471-JRG, Aug. 25, 2025 Claim Construction Order (Dkt. 303) at 2; *see also* POR at 8-12; EX-1003 ('687 patent); EX-1006 ('697 patent); EX-1009 ('218 patent); EX-1012 ('088 patent))

Exemplary Limitation of Challenged Claims

Claim Limitation	Claim Language
1.8	<i>transmit the first event information</i> to at least the first viewer client device of the first plurality of viewer client devices <i>via a first event information Internet communication channel between at least one first event socket of the at least one socket server and the first viewer client device</i> of the first plurality of viewer devices, wherein the at least one first event socket corresponds to the first event information germane to the first live sporting event

(POR at 25)

Claim Construction

Term	Construction
“socket”	Plain and ordinary meaning, which is an ‘ endpoint for network communications. ’” (Petition at 37, 40; POR at 2; <i>see also</i> Dkt. 179, Apr. 21, 2025 Joint CC Chart (agreed term).)
“event socket”	“a socket dedicated to a single event” (Dkt. 303, Aug. 25, 2025 CC Order (contested).)
“socket of a socket server”	plain and ordinary meaning (Dkt. 303, Aug. 25, 2025 CC Order (contested).)

Genius's Grounds

IPR	Patent	Ground	Challenged Claims	Prior Art	Statutory Basis
2024-01305	10,805,687	Ground 1A	1, 8–9	Ellis + Spivey	35 U.S.C. § 103
	10,805,687	Ground 1B	2–7	Ellis + Spivey + Herzog	35 U.S.C. § 103
	10,805,687	Ground 2	1–9	Herzog + Ellis + Spivey	35 U.S.C. § 103
2024-01307	10,805,687	Ground 1	19–25, 27–30	Ellis + Spivey	35 U.S.C. § 103
	10,805,687	Ground 2	19–25, 27–30	Herzog + Ellis + Spivey	35 U.S.C. § 103
2024-01308	10,425,697	Ground 1A	1, 7–9	Ellis + Spivey	35 U.S.C. § 103
	10,425,697	Ground 1B	2–6	Ellis + Spivey + Herzog	35 U.S.C. § 103
	10,425,697	Ground 2	1–9	Herzog + Spivey + Ellis	35 U.S.C. § 103
2024-01309	10,425,697	Ground 1	19–25, 27–30	Ellis + Spivey	35 U.S.C. § 103
	10,425,697	Ground 2	19–25, 27–30	Herzog + Spivey + Ellis	35 U.S.C. § 103
2024-01310	11,039,218	Ground 1A	12–15	Ellis + Spivey	35 U.S.C. § 103
	11,039,218	Ground 1B	1–11	Ellis + Spivey + Herzog	35 U.S.C. § 103
	11,039,218	Ground 2A	1–9, 12–14	Herzog + Spivey	35 U.S.C. § 103
	11,039,218	Ground 2B	10–11, 15	Herzog + Spivey + Ellis	35 U.S.C. § 103
2024-01311	11,039,218	Ground 1	16–30	Ellis + Spivey	35 U.S.C. § 103
	11,039,218	Ground 2A	21–22, 27–28	Herzog	35 U.S.C. § 102
	11,039,218	Ground 2B	25–26, 30	Herzog + Ellis	35 U.S.C. § 103
	11,039,218	Ground 2C	16–20, 23–24, 29	Herzog + Spivey	35 U.S.C. § 103

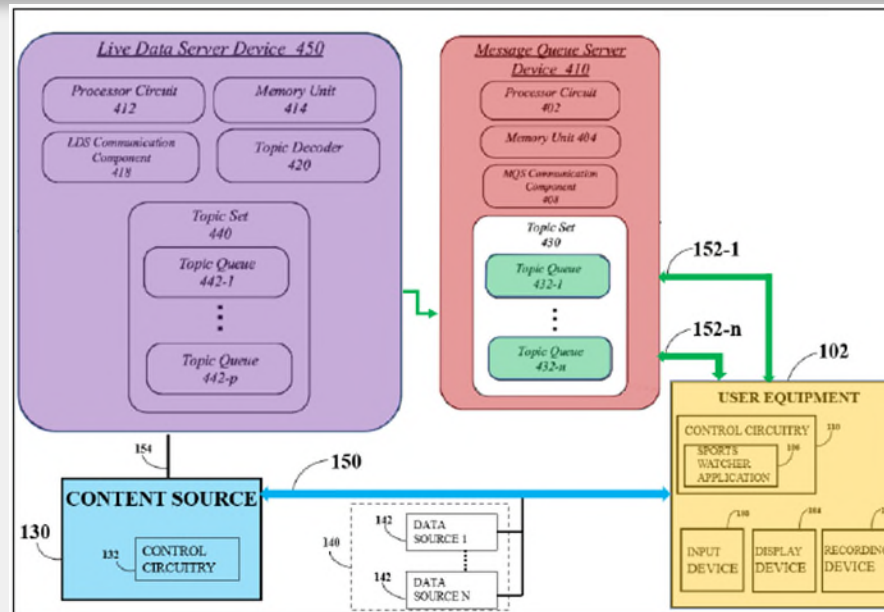
Genius's Grounds

- All grounds rely on various combinations of just three references:
 - Ellis (US 2014/0229992)
 - Spivey (US 2016/0036910)
 - Herzog (US 2015/0163379)
- Genius also alleges that claims 21–22, 27–28 of the '218 patent are anticipated by Herzog (-1311 IPR)

Genius's Ellis + Spivey Combination

- Petitioner relies entirely on Spivey for “event sockets” (POR at, 26, 41, 52, 60; PO Sur-Reply at 1-2; EX-2001, e.g., ¶¶221-222)
 - Spivey fails to disclose “event sockets” (e.g., POR at 2, 26-27)
 - Not “uniquely addressable endpoints” (e.g., POPR at 39-41; POR at 2, 26-27)
 - Not dedicated to a particular event (Dkt. 303, Aug. 25, 2025 CC Order)
- Petitioner relies on Ellis for video (POR at 19):
 - Ellis cannot solve Spivey's missing limitations
 - Petitioner removes Spivey's LDAS, the only component capable of communicating with Ellis's user devices (POR at 43-45)
- A POSITA would not combine Ellis and Spivey because the combined system would not function, and the goals of the systems conflict (POR at 45-49)

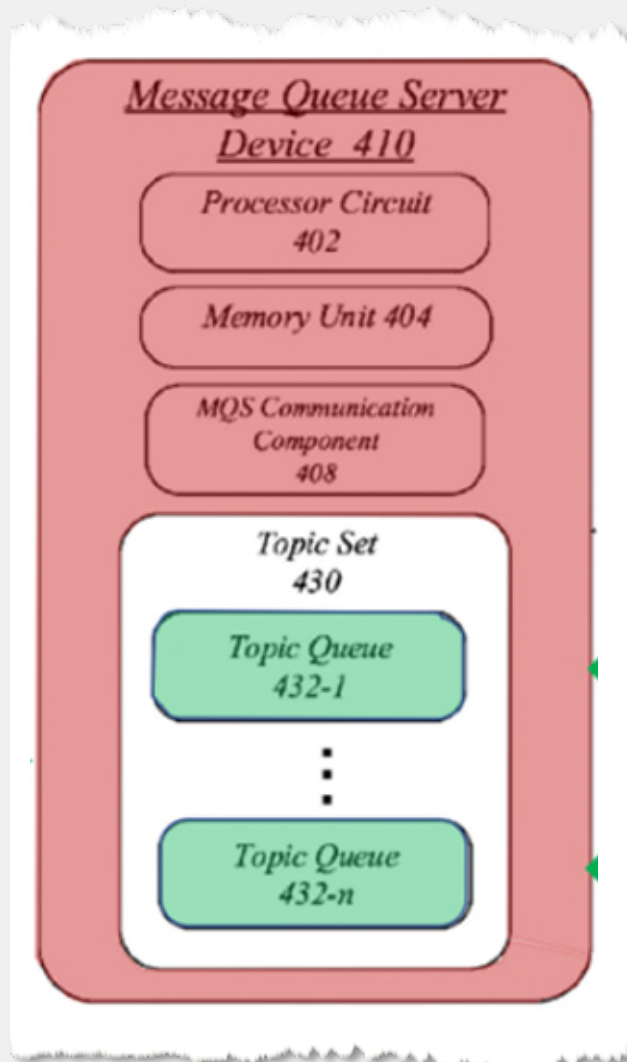
Petitioner's Ellis/Spivey Combination is Flawed



(Petition at 19)

- Petitioner proposes **removing** Ellis's Supplemental Content Source and replacing it with Spivey's **Live Data Server Device (LDSD)**. (Petition at 19-20)
- Petitioner proposes adding Spivey's **Message Queue Server Device (MQSD)**, which Petitioner alleges communicates **directly** with **client devices**. (Petition at 19-20)
- Petitioner proposes **removing** Spivey's Live Data Access Server (LDAS); Petitioner does not replace it. (Petition at 19-20)
- Petitioner proposes maintaining Ellis's video content delivery system. (Petition at 20)

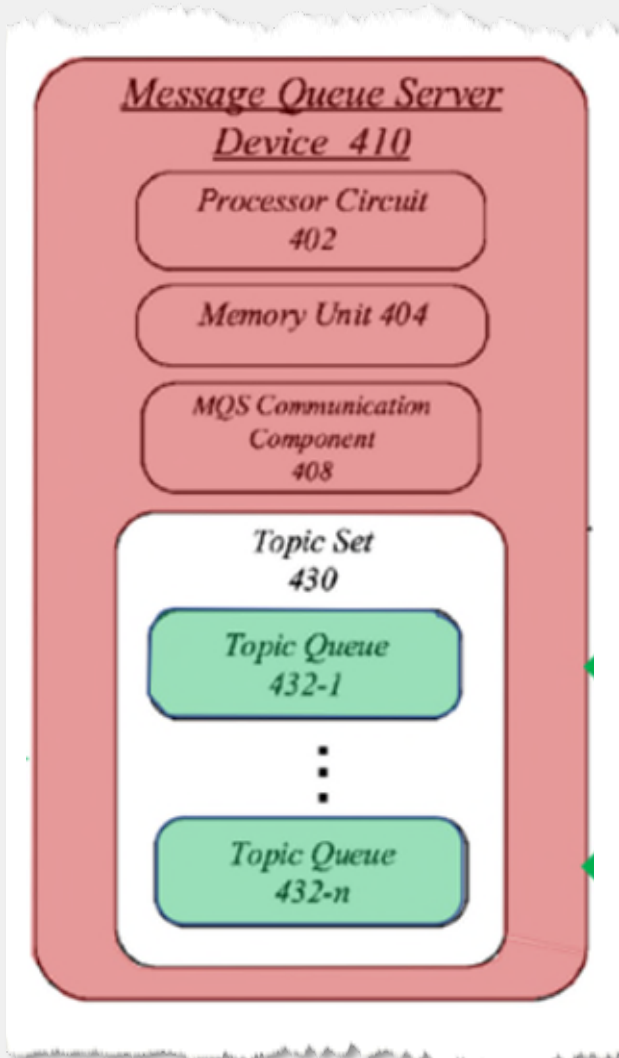
Spivey's "Topic Queues" are not "Event Sockets"



(Petition at 19; EX-1017 at Fig. 4)

- Spivey's "topic queues" at Spivey's MQSD is the **only** disclosure Petitioner points to for teaching the "event socket" limitation (POR at, 26, 41, 52, 60; EX-2001, *e.g.*, ¶¶221-222)
 - If Spivey's "topic queues" are not "event sockets," **all** of Petitioner's Grounds across **all** IPRs fail (PO Sur-Reply at 1; Pet. Reply at 2)
- Petitioner points to Ellis and Herzog as allegedly supplying surrounding architecture—not for teaching the "event socket"

Spivey's "Topic Queues" are not "Event Sockets"



(Petition at 19; EX-1017 at Fig. 4)

- Spivey's "topic queues" $\neq$ "uniquely addressable communication endpoints" (POPR at 38-44; POR at 2, 25-41)
- A "topic queue" includes only a topic label and a data payload. (EX-1017, [0048].)
 - The topic label is **not** "uniquely addressable"—it is simply text used for sorting data, **not for communication**

payload. A topic label may be, for example and without limitation, a text string such as "gamecenter.nfl.ravenssteelers," which in this example identifies a content provider, a league, and a specific live event. A data payload may include

(EX-1017, [0066]; see also POR at 37)

Spivey's "Topic Queues" are not "Event Sockets"

Dr. Wicker Agrees: Spivey's "topic labels" **cannot** be used as Petitioner contends

Gamecenter.nfl.ravenssteelers

Gamecenter.pga.winterchamp

Gamecenter.nhl.devilsbruins

Gamecenter.nba.lebronjames

Gamecenter.nfl.draft

(EX-1017 at Fig. 9 (excerpted))

18 Q And if we look at Figure 9 of Spivey, just to
19 be clear, the -- the topic labels illustrated in Figure
20 9, those topic labels alone are not URLs, correct?

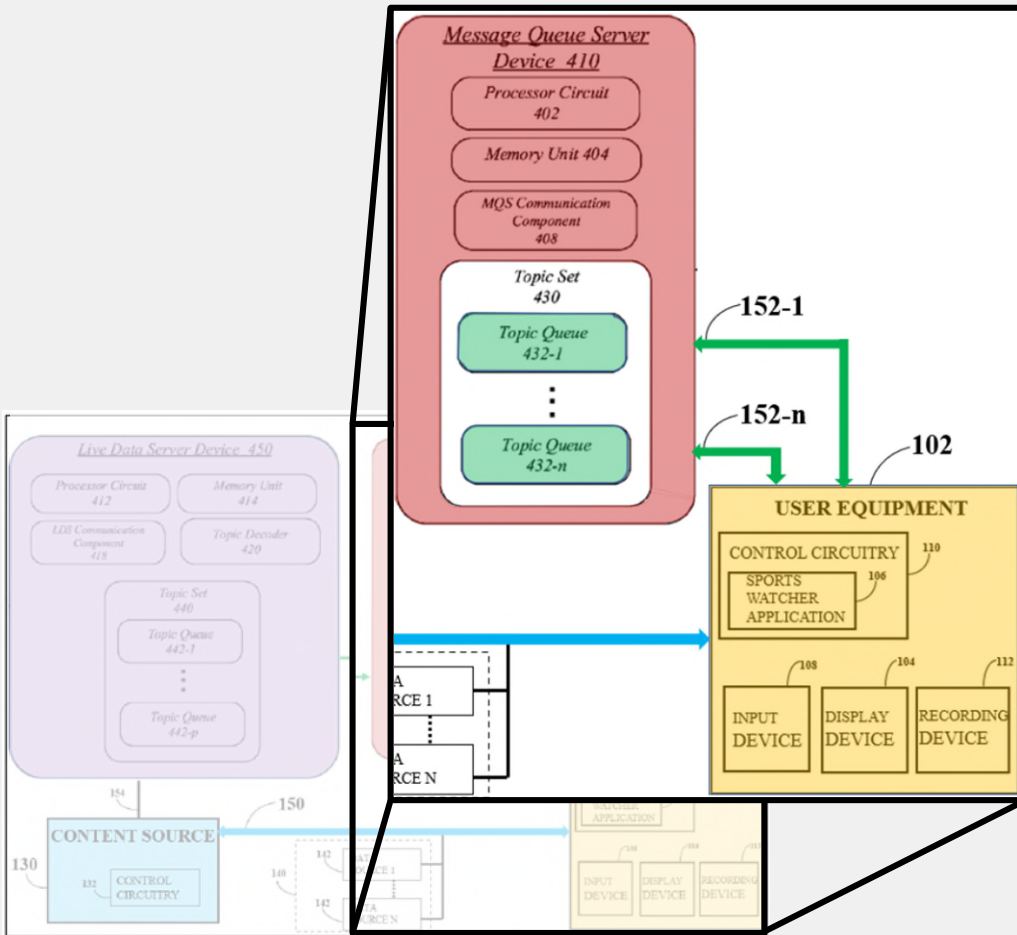
21 A The labels would be incomplete if used as URLs,
22 that's right.

23 Q And so the client device would not access a
24 third-party server using nothing more than a topic
25 label, correct?

1 A Well, these particular topic labels are not
2 fully qualified domain names, so you -- you couldn't use
3 them exactly as they are, but there's no reason that you
4 couldn't use a fully qualified domain name as a topic
5 label.

(EX-2039, 62:18-63:5; see also POR at 35-39)

Pointing to Spivey's MQSD Does Not Cure the Issue



- Petitioner's alleged "communication channels" **152-1** and **152-n** are unsupported, nor operate as Genius suggests—an **independent reason** why Spivey does not teach or suggest an "event socket." (POR at 6)
- End-user client devices **cannot** communicate **directly** with Spivey's MQSD. (POR at 27; PO Sur-Reply at 2, 5)
- Spivey's MQSD is behind a **firewall**. (POR at 17; PO Sur-Reply at 5; EX-1017, [0036])
- All end-user client communication must go through Spivey's LDAS—Spivey's architecture is **inoperable** without the LDAS. (PO Sur-Reply at 1-3, 5-7)

Petitioner's Theory Removes the Required LDAS

through 110-a (collectively client devices 110). In some embodiments, message queue server 120 is not accessible to clients over the network directly. For example, message queue server 120 may be behind a firewall (not shown).

(EX-1017, [0036])

[0062] LDA communication component 520 may also operate to receive connection requests from client devices 110 and to authenticate the requesting client. In some embodiments, operators 108 may need to register with live data access server 510 in order to be able to subscribe to and receive the live data. Client data 550 may include registration information, including, but not limited to, user identifiers, user names, passwords, and payment information. In some embodiments, a failure to authenticate a client may result in the connection being denied.

(EX-1017, [0062])

[0051] A topic queue 332 may be a queue data structure, in particular a first-in first-out queue, where data payloads are placed and immediately pushed to a subscribing live data access server. In an embodiment, the data payloads may not be stored on MQS device 310 once pushed out to the subscribing live data access server.

(EX-1017, [0051])

- The MQSD is the **only** component that Spivey describes as being **behind a firewall**. (POR at 17 (citing EX-1017, [0036]; EX-2001, ¶¶131-133); PO Sur-Reply at 5 (citing EX-1017, [0036]))
- The LDAS is the **only** component that Spivey describes as being **capable of authenticating end users** (PO Sur-Reply at 5-6 (citing EX-1017, [0062]-[0063], [0072]-[0074], [0081], [0092]))
- The LDAS is the component that “**subscribes**” to the topic queue “**data structures**” (PO Sur-Reply at 3 (citing EX-1017, [0049], [0051], [0078], [0094])); *see also id.* at 9-10)

Removing Spivey's LDAS Would Increase Latency

event, a gaming event, sporting event, etc.). In particular, various embodiments **increase the speed** at which live event data (e.g. sports scores and breaking news), are broadcast to mobile devices **by using topic queues and open duplex communication connections**, among other innovative techniques.

(EX-1017, [0027])

[0069] Upon receipt of message **606**, live data access server **130** may push the data payload to client device **110-a** in message **608**, **assuming** both that client device **110-a** selected the topic corresponding to the topic queue of message **604** and that **the connection between client device 110-a and live data access server 130 is still open**.

[0070] Of note is that the elapsed time between the receipt of message **602** by message queue server **120** and the receipt of message **608** by client device **110-a** may be on the order of, for example, 900 milliseconds, or less.

(EX-1017, [0069]-[0070])

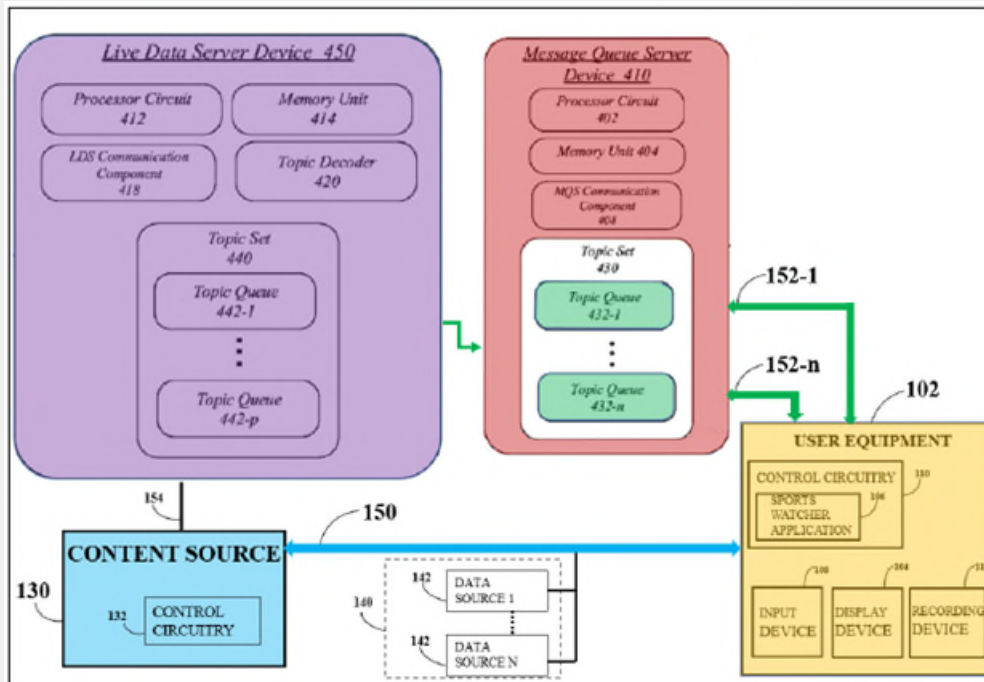
[0074] If the authentication succeeds, then a connection **between client device 200 and live data access server 130 may be opened** or accepted via message **706**. The connection, for example, may be **a full-duplex connection**, such as a web-socket connection.

(EX-1017, [0074])

- Spivey's LDAS is required for Spivey's touted reduction in latency (*E.g.*, EX-2001, ¶¶185-190, 259-262; POR at 6, 42, 46)
- The LDAS is the only component taught by Spivey that:
 - Provides the public-facing interface between end-user client devices and Spivey's MQSD
 - Is capable authenticating and connecting with end-user client devices, and
 - Is capable managing topic subscriptions

(POR at 5-6, 42-45; PO Sur-Reply at 1-3, 5-6; EX-2001, ¶¶185-190, 259-262)

A POSITA Would Not Combine Ellis + Spivey



(Petition at 19)

- Ellis does not:
 - Discuss a socket server of any type
 - Discuss or identify a latency problem
 - Disclose a backend architecture for data delivery

(POR at 16, 46)
- Spivey contends that it already solved a latency problem (EX-1017, [0027]-[0028]) and does not address video delivery (POR at 19)
- Petitioner **removes** the **single** component capable of communicating with end-user client devices, **disrupts** Spivey's **data flow**, and increase latency (POR at 42-46)
- Petitioner's proposal is not a "simple substitution" (POR at 45)
- Spivey's data flow is not compatible with Ellis's viewing and tuning techniques (POR at 47)

Herzog Fails Alone or in Combination

- Herzog relies on a large latency differential (POR at 53–59; PO Sur-Reply at 14–15)
 - Herzog must increase latency to operate; the opposite of PANDA's claims (POR at 52–59; PO Sur-Reply at 14–15)
- Herzog + Ellis and/or Spivey still lacks “event sockets” (POR at 52; PO Sur-Reply at 1–8, 11)
- A POSITA would not combine Spivey's MQSD/topic queues and Ellis's multi-event features with Herzog's latency-based system (POR at 53–62; PO Sur-Reply at 14–15)
- Herzog fails to teach, expressly or inherently, “online gaming information” claimed in the '218 patent (-1311 POR at 41-42, 50-53; *see also* EX-1009, cls. 1 & 21)

Herzog Relies on Deliberate Latency Differential

Patent Owner's Arguments

2038, ¶30.) Herzog teaches a process performed within the latency period of video/audio delivery to synchronize different delays between video/audio streams and metadata streams. (EX-1015, ¶¶74, 82.) This process relies on the projected latency period to synchronize the video/audio stream with the metadata stream.

(POR at 55)

Petitioner's Admissions

PANDA argues that Herzog requires latency to function, and thus a POSA would not have been motivated to reduce Herzog's data-delivery latency. POR, 7, 53, 58. Petitioner agrees, but only to the extent that the video data must have latency.

(Pet. Reply at 18)

For Herzog, a greater latency difference between the live video stream and data stream is preferable. This is because the user requests the meta-data after the

(Pet. Reply at 18)

Herzog Relies on Deliberate Latency Differential

Dr. Wicker Agrees

18 So there may be a discrepancy there, but
19 somewhere around the realm of 56 to 63 seconds, the
20 latency of the video is longer than the latency of the
21 metadata; is that correct?

22 A That is certainly true.

23 Q And so Herzog teaches a method in which the
24 video is used as a master clock for when the metadata
25 arrives at the application, correct?

1 A Yes, that's one way to look at it. Basically
2 what's happening is that the metadata is being delayed
3 so that the timestamps line up.

4 Q And so even if one were to decrease the latency
5 of the metadata between the client and server further,
6 you know, reducing it down close to zero seconds, it
7 would still arrive at the client at the same time
8 because it's been synchronized to the video stream,
9 correct?

10 A That is correct.

(EX-2039, 89:18-90:10)

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