Genius Sports Ltd.

PETITIONER

v.

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

PATENT OWNER

IPR2024-01305, -307, -308, -309, -310, -311

Petitioner's Presentation | Dec. 18, 2025

Roadmap

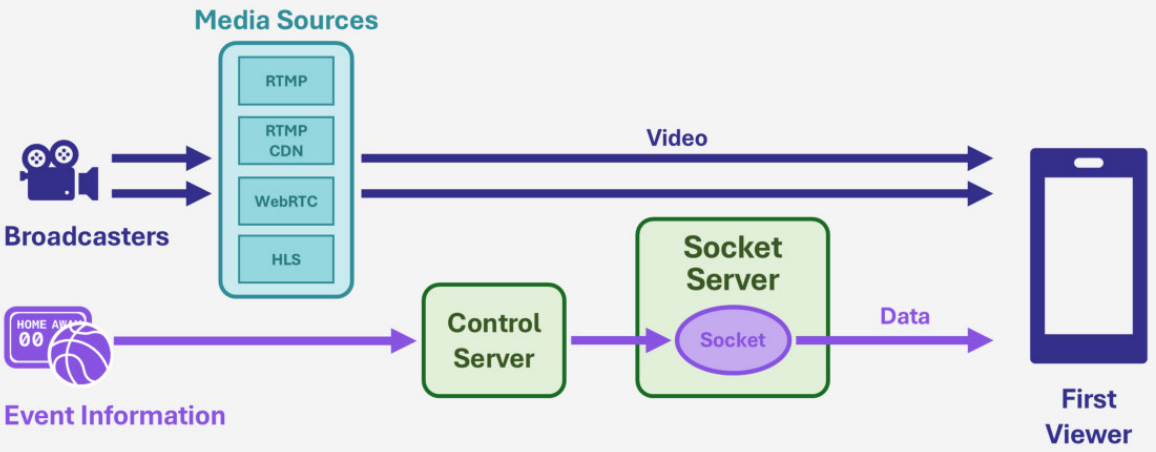
1. Overview
2. Socket Server
3. Webserver
4. Online Gaming Information
5. Secondary Considerations

Roadmap

1. Overview
2. Socket Server
3. Webserver
4. Online Gaming Information
5. Secondary Considerations

’687 Patent, Claim 1

’687 Patent, Claim 1
1. A system for providing, to a first plurality of viewer client devices, a first plurality of copies of a first live stream of digital content relating to a first live sporting event, and for providing, to a second plurality of viewer client devices, a second plurality of copies of a second live stream of digital content relating to the first live sporting event or a second live sporting event, the system comprising:
A) a plurality of media sources to: receive the first live stream of digital content and the second live stream of digital content;
provide a first copy of the first plurality of copies to a first viewer client device of the first plurality of viewer client devices via a first video Internet communication channel between the plurality of media sources and the first viewer client device of the first plurality of viewer client devices; and
provide a first copy of the second plurality of copies to a first viewer client device of the second plurality of viewer client devices via a second video Internet communication channel between the plurality of media sources and the first viewer client device of the second plurality of viewer client devices;
B) a control server to periodically retrieve, via the Internet, first event information germane to the first live sporting event; and
C) at least one socket server communicatively coupled to the control server to: receive from the control server at least the first event information; and
transmit the first event information to at least the first viewer client device of the first plurality of viewer client devices 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 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.



Grounds

'687 Patent			
Ground	Basis	Claims	Reference(s)
1A	§103	1, 8-9, 19-25, 27-30	Ellis in view of Spivey
1B	§103	2-7	Ellis in view of Spivey and Herzog
2	§103	1-9, 19-25, 27-30	Herzog in view of Spivey and Ellis

'697 Patent			
Ground	Basis	Claims	Reference(s)
1A	§103	1, 7-9, 19-25, 27-30	Ellis in view of Spivey
1B	§103	2-6	Ellis in view of Spivey and Herzog
2	§103	1-9, 19-25, 27-30	Herzog in view of Spivey and Ellis

'218 Patent			
Ground	Basis	Claims	Reference(s)
1A	§103	12-30	Ellis in view of Spivey
1B	§103	1-11	Ellis in view of Spivey and Herzog
2A	§102	21-22 and 27-28	Herzog
2B	§103	1-9, 12-14, 16-20, 23-24, and 29	Herzog in view of Spivey
2C	§103	25-26 and 30	Herzog in view of Ellis
2D	§103	10-11 and 15	Herzog in view of Spivey and Ellis

Ellis Transmits Video and Data From Multiple Sources to UE

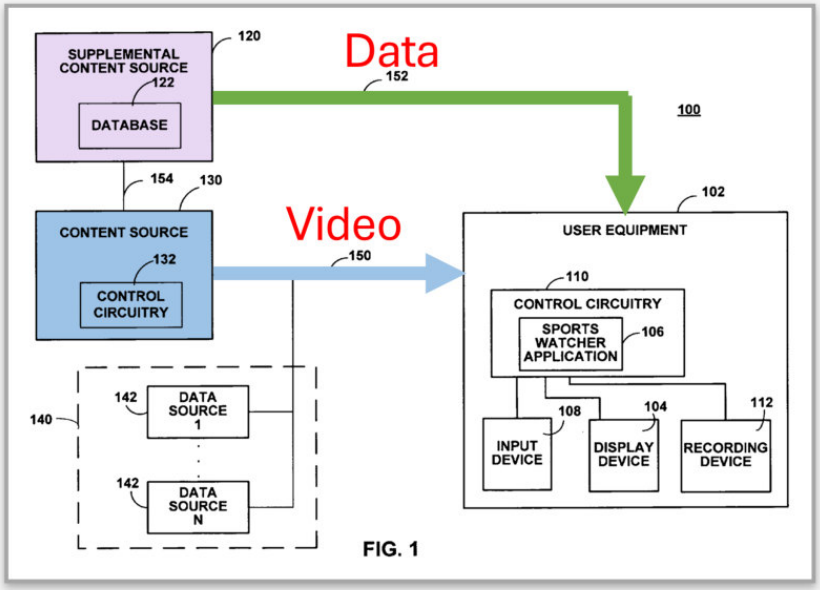
(54) **SYSTEMS AND METHODS FOR PROVIDING ENHANCED SPORTS WATCHING MEDIA GUIDANCE**

[0004] Such media guidance applications are typically generalized applications that support basic media guidance functionality for a wide array of media content of a variety of different genres and subgenres. These applications, however, typically fail to provide a custom set of features and functionality for specific types of media content, such as sporting events and other sports-related content.

Ex. 1016 (Ellis) at ¶ 4; IPR2024-01305, Paper 1 (Petition) at 13

related information to user equipment **102**. In some embodiments, this sports-related information is provided to user equipment **102** as a plurality of real-time data feeds. Each data feed may be individually accessed or subscribed to by user equipment **102**. For example, sports score and game

Ex. 1016 (Ellis) at ¶ 41; IPR2024-01305, Paper 1 (Petition) at 13



Ex. 1016 (Ellis) at Fig. 1; IPR2024-01305, Paper 1 (Petition) at 13-14

Ellis Transmits Video and Data From Multiple Sources to Client



Dr. Aviel Rubin
PANDA's Technical Expert

Q. . . . do you understand that Ellis renders video and data feed as overlays on the user device?

A. Yes.

Ex. 1063 (Rubin Tr.) at 97:3-6

Ellis describes a generic two-track architecture whereby the user's equipment "receives content in the form of signals from content source 130 and/or supplemental content source 120 over communications paths 150 and 152, respectively," for example, as shown in FIG. 1 (below). (EX-1016, ¶39, FIG. 1.) The viewer may view content from content source 130 via communication path 150, while also receiving data from supplemental content source 120 via communication path 152 (e.g., data used to update the scoreboard). (EX-1016, ¶¶39-41, FIG. 1; EX-2001, ¶¶114-119.)

IPR202-01307, Paper 14 (POR) at 16

Herzog Transmits Video and Data to Client over Separate Channels

(54) **TIME SYNCHRONIZATION OF VIDEO AND DATA INSIDE A MOBILE DEVICE**

[0003] It may be desirable to provide a mobile device, such as a tablet, with a capability of receiving multiple sources of live information that are related to each other, but are published and processed at different rates. For example, 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. Furthermore, it may be desirable for the same user to simultaneously view other information, such as meta-data, that provides additional information related to the HLS video. Assembling meta-data and HLS video (for example), in which each is published and processed at a different rate and perhaps from different sources, for simultaneous display, in real-time has not as yet been implemented.

Ex. 1015 (Herzog) at ¶ 3; IPR2024-01305, Paper 1 (Petition) at 15

[0018] As will be described, as an example, the video and audio data and the meta-data are both time stamped with consistent (e.g., GPS) timing protocols. In this manner, each respective data is time-tagged to the same timing signature, even though each respective data transmits from different physical locations. As a result, the video and audio data are time synchronized to the meta-data, so that all the data may be displayed in a mobile device (a smartphone or a tablet) in correct time sync.

Ex. 1015 (Herzog) at ¶ 18; IPR2024-01305, Paper 1 (Petition) at 16-17

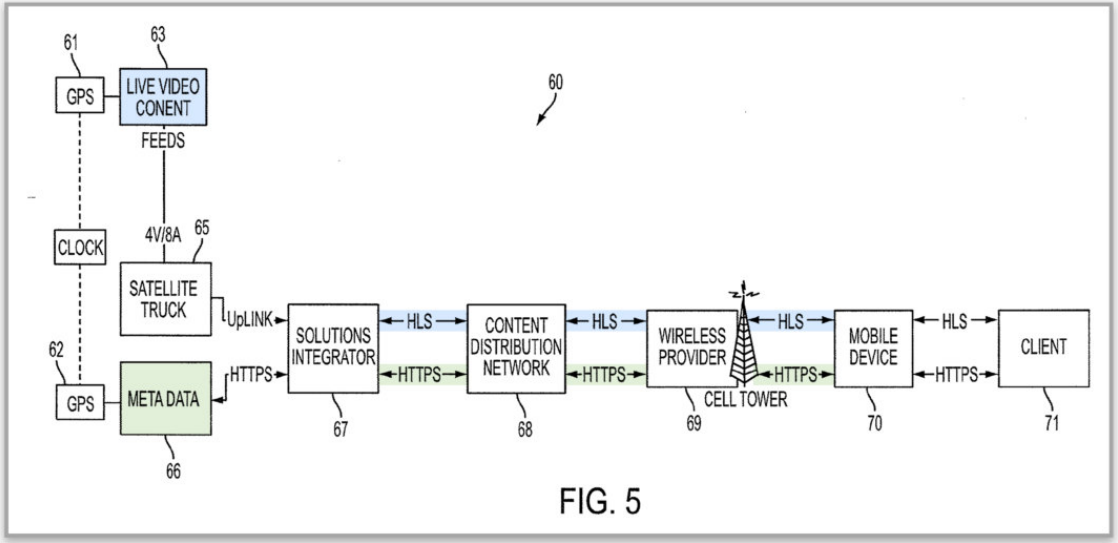


FIG. 5

Ex. 1015 (Herzog) at Fig. 5; IPR2024-01305, Paper 1 (Petition) at 15-16

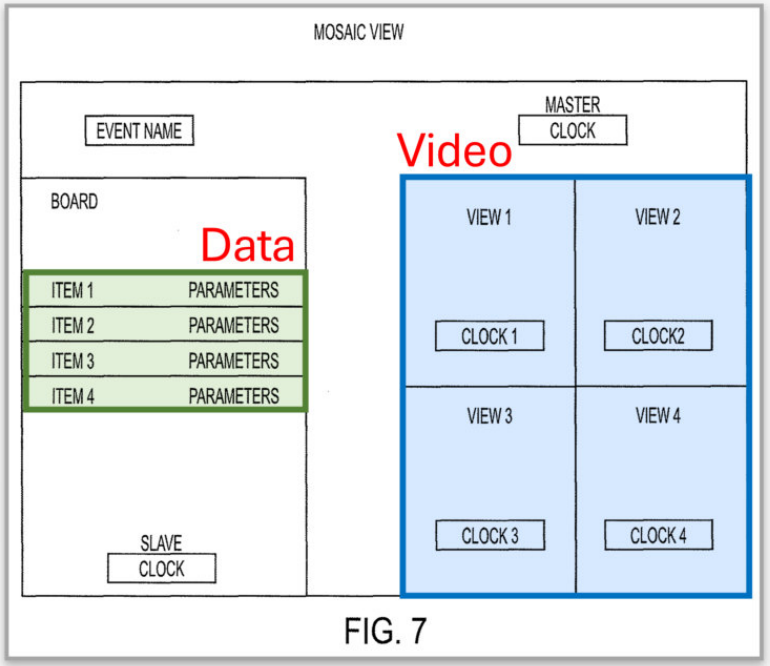
Herzog Transmits Video and Data to Client over Separate Channels

The audio/video stream and the metadata stream may be sent to a mobile device as separate protocols (e.g., HLS protocol for audio/video and HTTP protocol for metadata), as shown in FIG. 5 (below). (EX-1015, ¶¶59-61; EX-2001, ¶151.) Only when the two separate streams arrive at the mobile device are "[b]oth types of data [] assembled in the mobile device 45 via the client application software that resides within the mobile device, for appropriate presentation on the device's display." (EX-1015, ¶58.)

IPR2024-01307, Paper 14 (POR) at 21

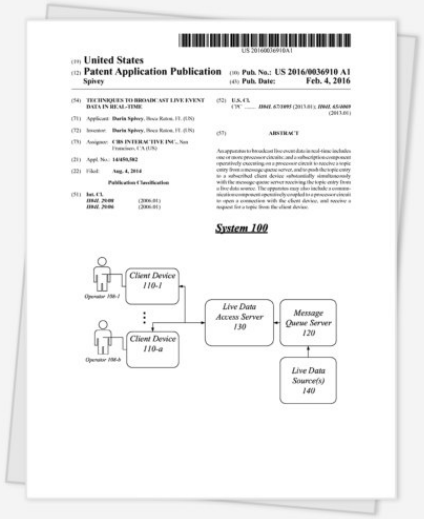
For example, the event may be an Indianapolis Car Race; the video and audio data may be multiple video/audio streams of race cars and drivers, as they are imaged at different locations on the race track; and the telemetry data (meta-data) may

Ex. 1015 (Herzog) at ¶ 45; IPR2024-01305, Paper 1 (Petition) at 15-17

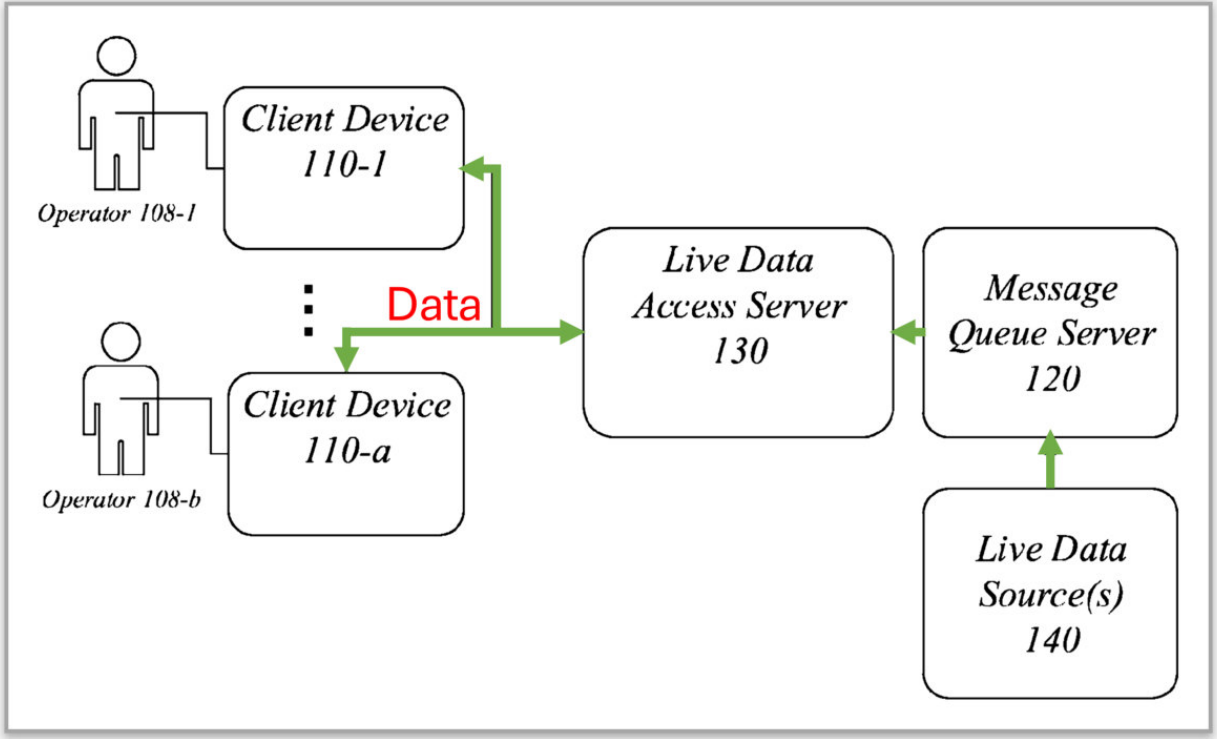


Ex. 1015 (Herzog) at Fig. 7; IPR2024-01305, Paper 1 (Petition) at 49

Spivey Pushes Live Event Data to Client



(54) **TECHNIQUES TO BROADCAST LIVE EVENT DATA IN REAL-TIME**



Ex. 1017 (Spivey)

Flexibility of Spivey's Architecture

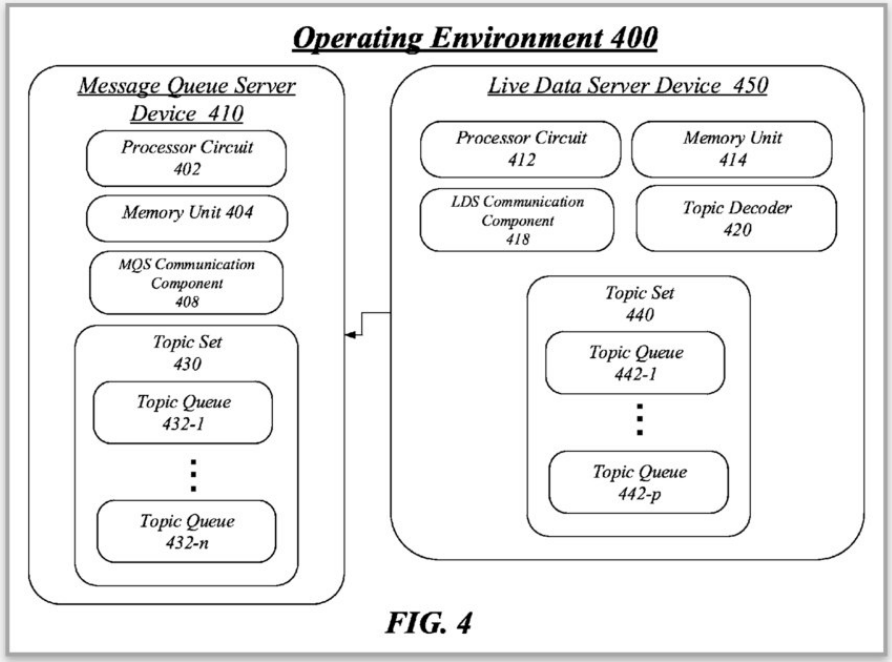


FIG. 4

Ex. 1017 (Spivey) at Fig. 4; IPR2024-01305, Paper 1 (Petition) at 19

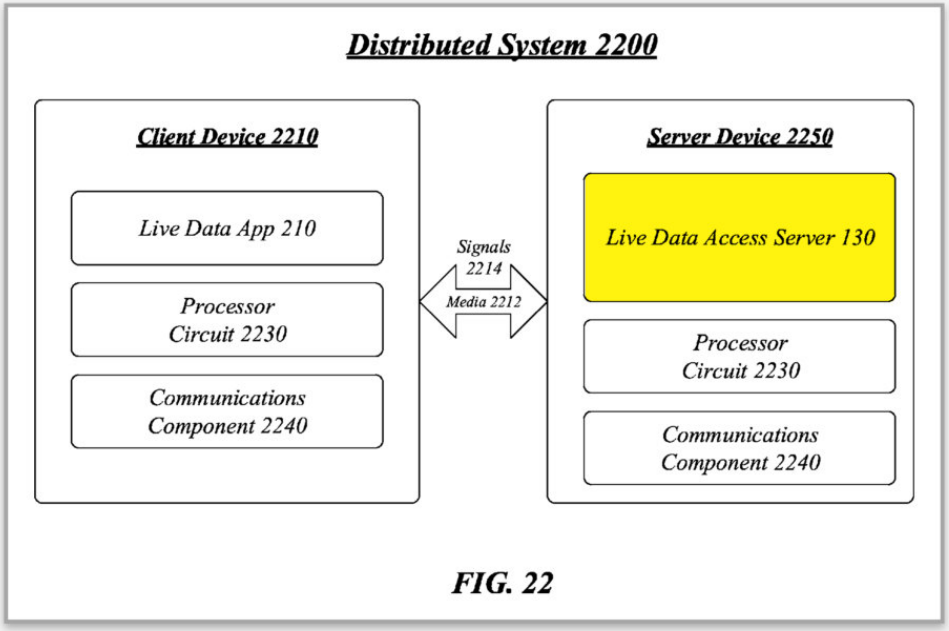


FIG. 22

Ex. 1017 (Spivey) at Fig. 22; IPR2024-01305, Paper 22 (Reply) at 14-15

Spivey's Topic Queues Are Uniquely Addressable Communication Endpoints

PANDA



Dr. Aviel Rubin
PANDA's Technical Expert

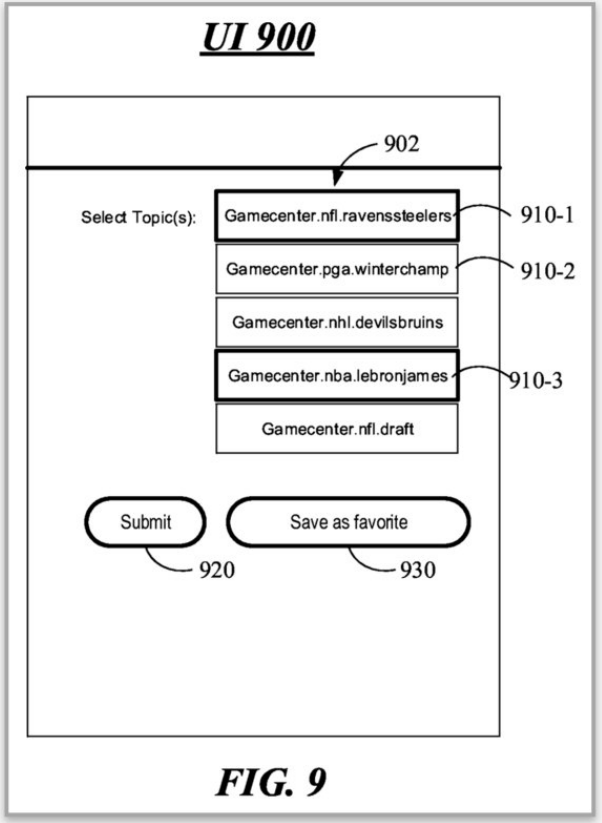
Q. So is it fair to say that according to the '218 specification an event socket is a uniquely addressable communication endpoint because, first, it is accessible through a URL, and second, it includes an EventID?

A. Uniquely identified -- what was the first?

Q. Uniquely addressable communication endpoint.

A. Right. The URL is sufficient for that.

Ex. 1063 (Rubin Tr.) at 47:21-48:8



Ex. 1017 (Spivey) at Fig. 9; IPR2024-01305, Paper 1 (Petition) at 37-39

Spivey Reduces Latency in Live Event Data Delivery

Problem

[0002] Some content providers, such as news and information services, provide data about live events to users who may not be present at the events. As technology allows users to receive such data away from desktop computers, the demand for live event data in real time on mobile devices has increased. However, the content providers may encounter obstacles to providing the data to mobile devices, in real-time, and with minimal delays.

Ex. 1017 (Spivey) at ¶ 2

Conventional Solution

[0028] Conventional live event data content providers may receive data about a live event, such as a sporting event, from various sources. The received data may then need to be added to a database system, written to files, and/or propagated to servers. Clients may then need to ask for new data, whereupon the data may be read from the servers and provided to the requesting clients. In practice, this may cause latency or a delay from the time the data is received by the live event data content provider to when the client receives the data. In some cases, this delay may be on the order of seconds (e.g., 30 to 45 seconds) or minutes. The embodiments discussed herein may reduce that delay to an order of milliseconds (ms) (e.g., 100 ms) or less, providing a significant advantage over the conventional practices.

Ex. 1017 (Spivey) at ¶ 28; IPR2024-01305, Paper 1 (Petition) at 18-19

Disclosed Solution

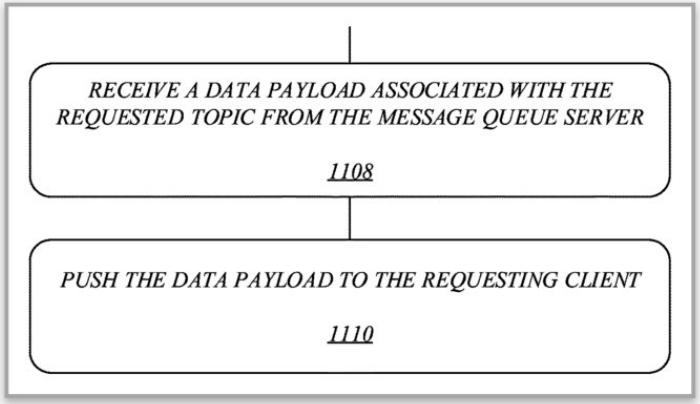
[0027] Various embodiments are generally directed to techniques for managing communications of electronic information for electronic devices, such as mobile devices, for example. Some embodiments are directed to techniques to broadcast media content in real-time. The media content may comprise, for example, data from a live event (e.g., news 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 (Spivey) at ¶ 27; IPR2024-01305, Paper 1 (Petition) at 18-19

Spivey Uses WebSocket Connections to Deliver Data in Real-Time

[0043] Client **200** may include a client communication component **208**. Client communication component **208** may include hardware and/or software capable of connecting to another device, e.g. live data access server **130** and communicating electronic data across the connection. In an embodiment, for example, client communication component **208** may request and participate in a websocket connection with live data access server **130**. The embodiments are not limited to these examples.

Ex. 1017 (Spivey) at ¶ 43; IPR2024-01305, Paper 1 (Petition) at 39-40



Ex. 1017 (Spivey) at Fig.11

[0096] The logic flow **1100** may push the data payload of the topic entry to the client device via the connection at block **1110**. For example, live data access server **130** may push the data payload to client device **110**, and to any other connected client devices that also requested that topic. In various embodiments, the data payload of the topic entry may be pushed to the subscribed connected client devices substantially simultaneously with the message queue server receiving the topic entry from a live data source, e.g. with a time delay of 100 milliseconds or less. In the embodiments described herein, a set of actions described as taking place "substantially simultaneously" means that the set of actions execute within the same defined period of time. The defined period of time may be of any length as suitable for a given implementation. In one embodiment, for example, the defined period of time is at least two orders of magnitude shorter than conventional time periods of legacy devices. For example, conventional time periods for legacy devices may be on the order of 30 to 45 seconds. The set of actions may be executed sequentially, in parallel, or some combination thereof within the defined time period.

Ex. 1017 (Spivey) at ¶ 96; IPR2024-01305, Paper 1 (Petition) at 61

Roadmap

1. Overview
2. **Socket Server**
3. Webserver
4. Online Gaming Information
5. Secondary Considerations

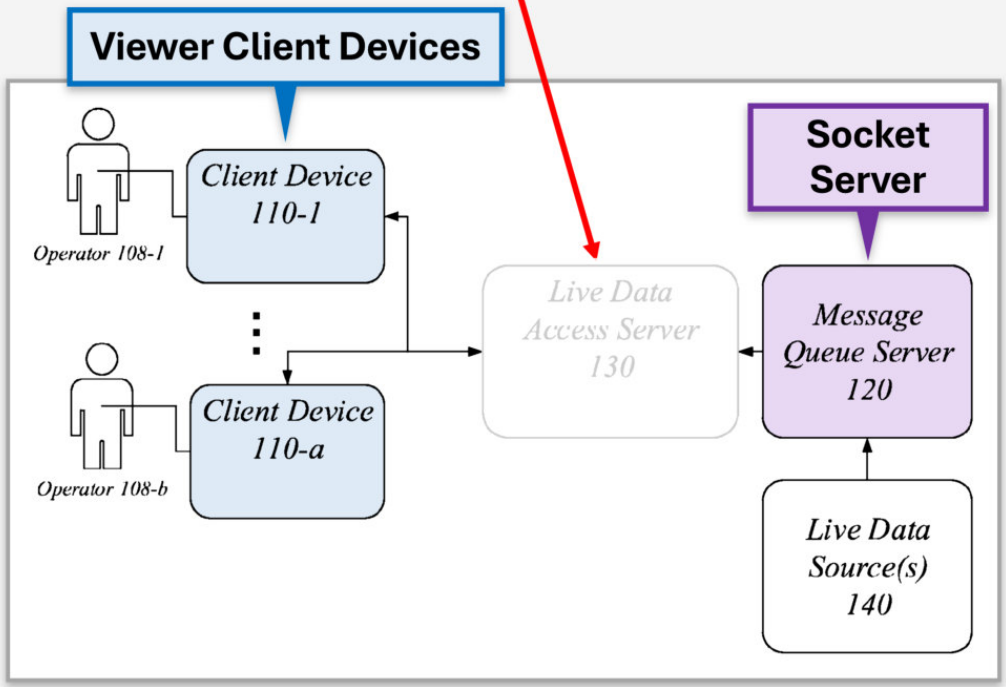
Spivey Discloses the Claimed Event Sockets

Spivey Discloses an MQSD-Client Connection

[0036] Message queue server **120** may receive live data from one or more live data sources **140**, and may process live data to provide live data quickly to the client devices **110-1** 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). Embodiments and operations of message queue server **120** are discussed below with respect to FIGS. **3** and **4**.

[0046] Message queue server **310** may include a message queue server (MQS) communication component **308**. MQS communication component **308** may include hardware and/or software that allows MQS device **310** to transmit and receive electronic data, for example live data, with other devices, such as live data access server **130**. In an embodiment, MQS communication component **308** may also receive requests to subscribe to topics in a topic set **330**, and may push data from topic queues **332-1**, **332-*n*** to the subscribers of the topics corresponding to those topic queues.

[0038] The system **100** may include a live data access server **130**. Live data access server **130** may include any



Ex. 1017 (Spivey) at ¶ 36, 46, 38; IPR2024-01305, Paper 1 (Petition) at 33-34, 38

Dr. Rubin: "May" Does Not Indicate LDAS Is Optional

PANDA



Dr. Aviel Rubin
PANDA's Technical Expert

Q. How do I know when may means optional and how do I know when may means does?

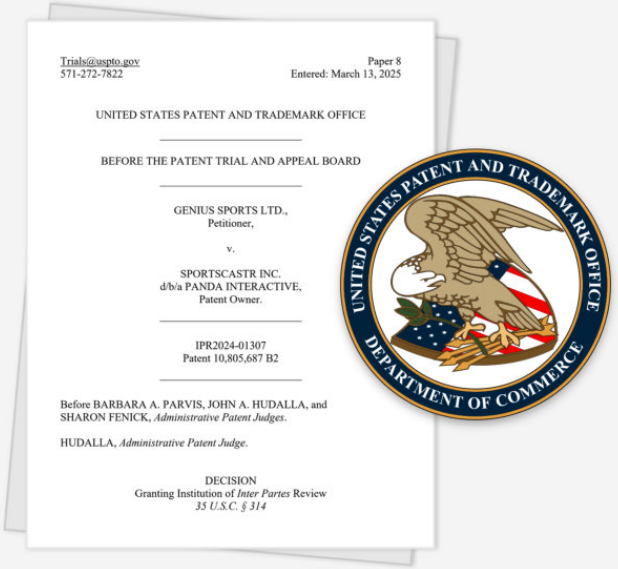
A. You would have to ask Spivey.

Q. How do you know as the POSA reading the specification?

A. Well, when I see that it says the system may include a message queue server in the context of this patent application, I say, well, it has to because the invention doesn't make any sense without it. So in that – I mean I can look at it case by case and say I don't recall seeing a place where it said may and may not would have been possible.

Ex. 1063 (Rubin Tr.) at 61:2-14

Common Sense Dictates That "May" Is Optional



Trials@uspto.gov
571-272-7822

Paper 8
Entered: March 13, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENIUS SPORTS LTD.,
Petitioner,

v.

SPORTSCASTR INC.
d/b/a PANDA INTERACTIVE,
Patent Owner.

IPR2024-01307
Patent 10,805,687 B2

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

HUDALLA, *Administrative Patent Judge*.

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

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

IPR2024-01307, Paper 8 (Decision Granting Institution) at 24

Spivey Contemplates LDAS and MQSD in Single Server



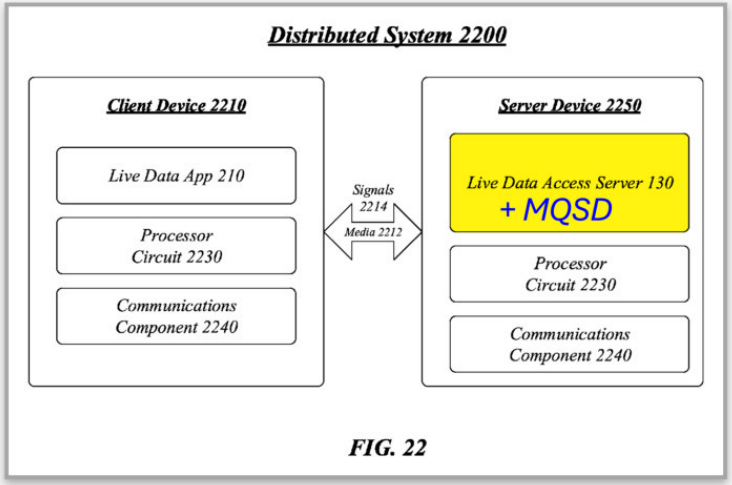
Dr. Stephen Wicker
Genius Sports
Technical Expert

6. The architectural flexibility of Spivey is exemplified in the distributed system embodiment depicted in Figure 22, where the server device 2250 is explicitly described as being capable of implementing the functionality of the live data access server (LDAS) 130, 1430, the message queue server 120, 1420, and/or the aggregator host server 1450 (*see id.*, ¶158). This design enables a single server to consolidate the roles of both the LDAS and MQSD, thereby supporting configurations in which client devices communicate directly with the MQSD without the need for a separate LDAS component. Such an arrangement underscores the modularity and adaptability of the system, allowing for streamlined deployments that can optimize for performance, resource utilization, or security requirements as needed.

Ex. 1064 (Supplemental Wicker Declaration) at ¶ 6

[0158] The distributed system **2200** may comprise a client device **2210** and a server device **2250**. In general, the client device **2210** may be the same or similar to the client device **210**, and the server device **2250** may be the same or similar to live data access server **130**, **1430**, message queue server **120**, **1420**, and/or aggregator host server **1450** as described with reference to FIGS. **1**, **2**, and **14**. For instance, the client system

Ex. 1017 (Spivey) at ¶ 158;
IPR2024-01305, Paper 22 (Reply) at 4-5



Ex. 1017 (Spivey) at Fig. 22; IPR2024-01305, Paper 22 (Reply) at 4-5

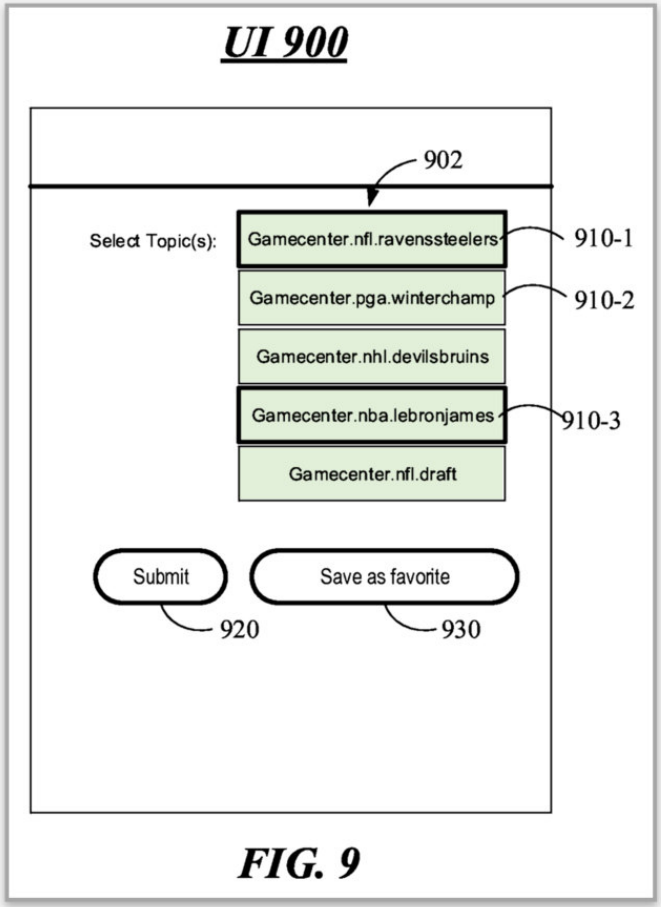
Spivey's Topic Queues Are Event Sockets

[0048] A topic entry may include a unit of live data received from, for example, live data sources **140** such as a live data feed or a live data entry operator. The unit of live data may include any media information about at least one of a live event (e.g., news, game, sport, activity, and so forth), an occurrence within a live event (e.g., a play, an error, an injury, a substitution, and so forth), and/or a participant at the live event (e.g., a player, a coach, an official, and so forth). A topic entry may include a topic label and a data payload including one or more items of data about a moment in a live event. The topic label may correspond to a topic queue **332**. When the live event is a sporting event, such as a baseball game, the data payload may include, for example, a score, a play, an error, an injury, a player at-bat, and so forth.

Ex. 1017 (Spivey) at ¶ 48; IPR2024-01305, Paper 1 (Petition) at 30-32

[0052] In some embodiments, topic queues **332** may be hierarchically related. For example, a topic "gamecenter.nfl" may apply to all data about the National Football League. A dependent topic may be "gamecenter.nfl.ravenssteelers" which may relate to a specific game between two NFL teams. A third topic may be "gamecenter.nfl.ravenssteelers.stats" which may relate to statistics about the specific game.

Ex. 1017 (Spivey) at ¶ 52; IPR2024-01305, Paper 1 (Petition) at 35, 37



Ex. 1017 (Spivey) at Fig. 9; IPR2024-01305, Paper 1 (Petition) at 37-39

Dr. Rubin Admits Spivey's Topic Queues Are Dedicated to Specific Events

PANDA



Dr. Aviel Rubin
PANDA's Technical Expert

Q. And a topic queue could be, for example, related to a specific Ravens-Steeler game. Is that accurate?

A. That's possible.

Q. And an example of a topic queue dedicated to the Ravens-Steelers game could be ravenssteelers.stats and another could be ravenssteelers.plays. Is that a fair characterization of Spivey?

A. Yes.

Q. And information, according to Spivey, related to ravensteelers.stats would not be placed in the ravenssteelers.play topic queue; correct?

A. I mean it doesn't specifically state that, but the understanding is that you would put each of the topics within the label that matches that topic.

Ex. 1063 (Rubin Tr.) at 77:1-78:7

URLs Are Uniquely Addressable Endpoints

PANDA



Dr. Aviel Rubin
PANDA's Technical Expert

Q. So is it fair to say that according to the '218 specification an event socket is a uniquely addressable communication endpoint because, first, it is accessible through a URL, and second, it includes an EventID?

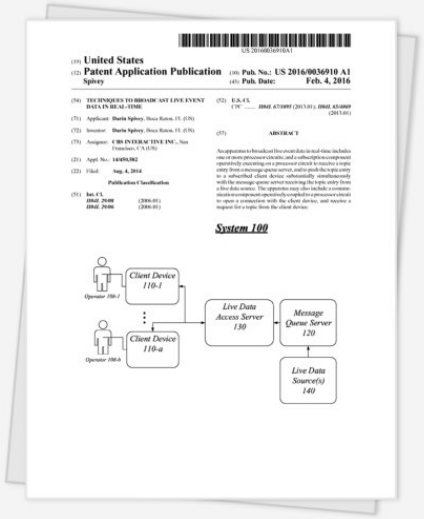
A. Uniquely identified -- what was the first?

Q. Uniquely addressable communication endpoint.

A. Right. The URL is sufficient for that.

Ex. 1063 (Rubin Tr.) at 47:21-8

Spivey Confirms Topic Queues Are Uniquely Addressable Communication Endpoints



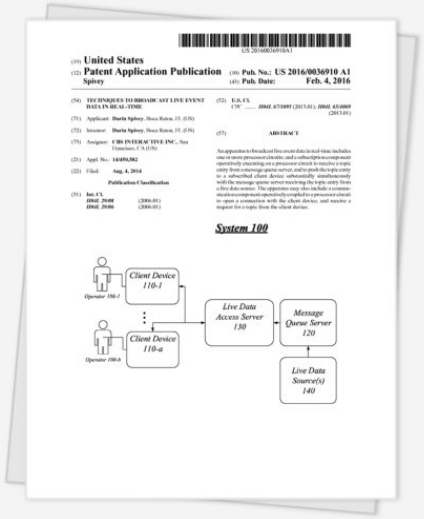
[0066] Message flow **600** begins when live data is received from live data source(s) **140** at message queue server **120** in message **602**. Message **602** may be in the form of a topic entry, which may include, at least, a topic label and a data payload. A topic label may be, for example and 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 one or more items of information about the live event in progress, such as a score, a name of the player that scored or made a play, an injury, a penalty, an error, a new record set, and so forth.

Ex. 1017 (Spivey) at ¶ 66; IPR2024-01305, Paper 1 (Petition) at 37

[0082] UI **800** may also include an address UI element **830** to allow the operator to select or enter the address or connection information to a particular live data access server. The address may resemble a uniform resource locator (URL), for example, "torq.cbssports.com/torq." In an embodiment, address UI element **830** may be a text field or a pull-down menu pre-populated with addresses of live data access servers available to live data app **210**. The embodiments are not limited to these examples.

Ex. 1017 (Spivey) at ¶ 82; IPR2024-01305, Paper 1 (Petition) at 37-38; see also Ex. 1001 *¶¶ 171-172*

Spivey's Topic Queue Connections Are Bidirectional Websocket Connections



[0043] Client **200** may include a client communication component **208**. Client communication component **208** may include hardware and/or software capable of connecting to another device, e.g. live data access server **130** and communicating electronic data across the connection. In an embodiment, for example, client communication component **208** may request and participate in a websocket connection with live data access server **130**. The embodiments are not limited to these examples.

8. The computer-implemented method of claim **7**, wherein the connection is a websocket connection.

11. The computer-implemented method of claim **10**, wherein the live event is a sporting event and a topic entry includes information about at least one of: a play, a score, a player injury, an error, a record, a substitution, a statistic, a player, a roster, and penalty.

[0061] LDA communication component **520** may include hardware and/or software that allows live data access server **510** to open and maintain connections with, for example, client devices **110** and message queue server **120**. In an embodiment, LDA communication component **520** may be able to listen for, accept, or otherwise open, and maintain a full-duplex connection, such as a websocket connection with a client device **110**. A websocket connection typically comprises a two-way connection between two entities, where each of the two entities can send and receive data simultaneously, analogously to a voice telephone connection where both parties can talk and listen at the same time. Alternatively, half-duplex connections may be utilized as well. The embodiments are not limited to these examples.

Ex. 1017 (Spivey) at ¶¶ 43, 61, Claims 8, 11; IPR2024-01305, Paper 1 (Petition) at 39-40

A POSA Would Have Been Motivated To Combine Ellis-Spivey

Ellis + Spivey

Ellis: Separate Video and Data Channels

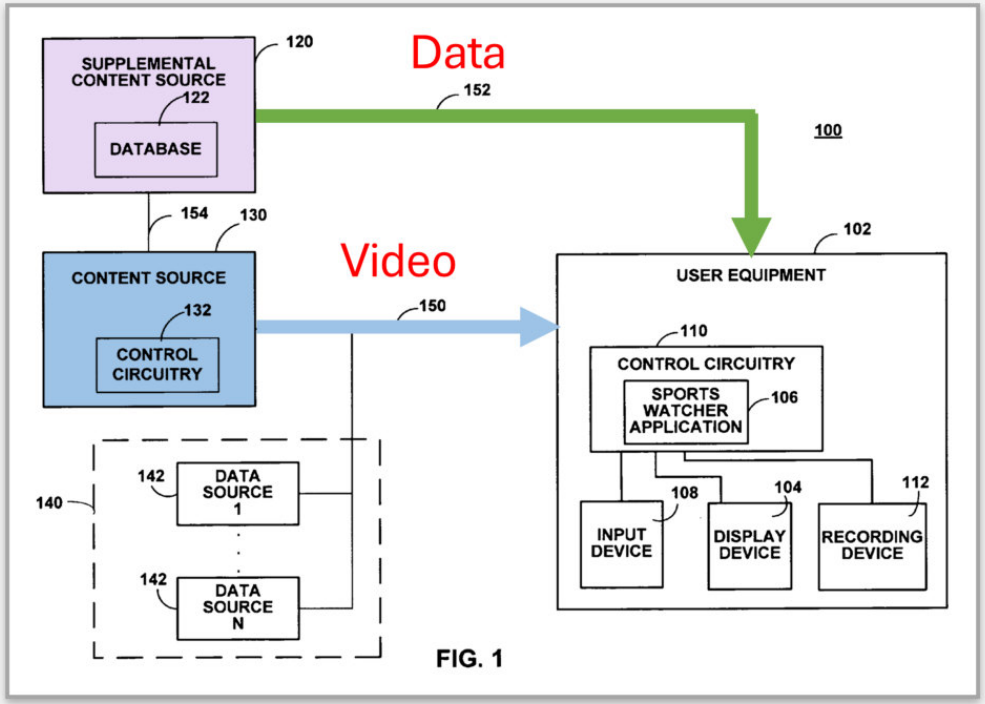


FIG. 1

Spivey: Backend Architecture for Data Channel With Reduced Latency

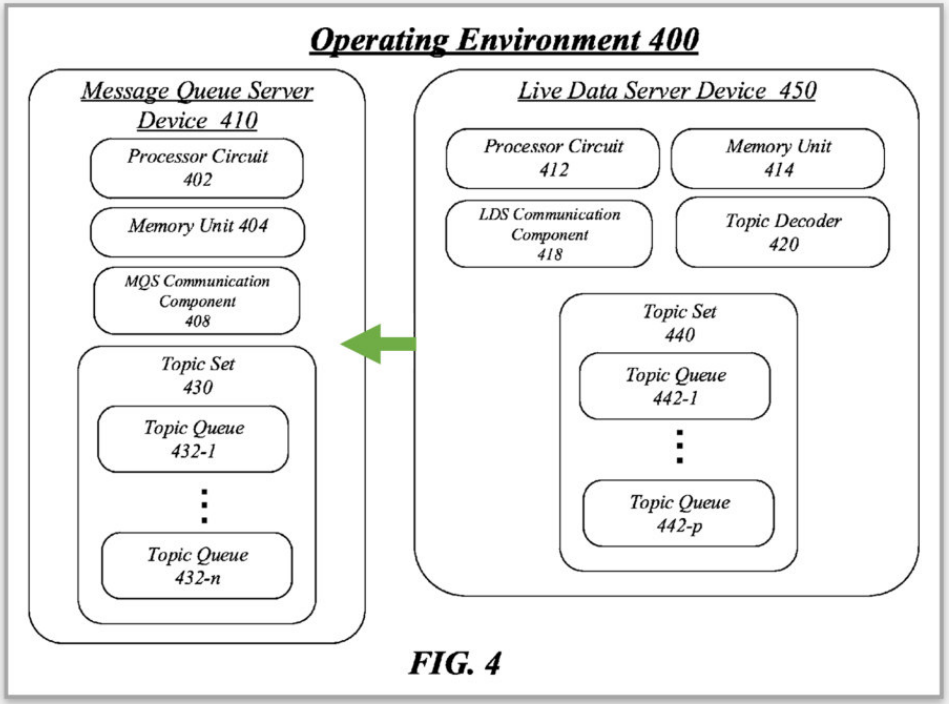
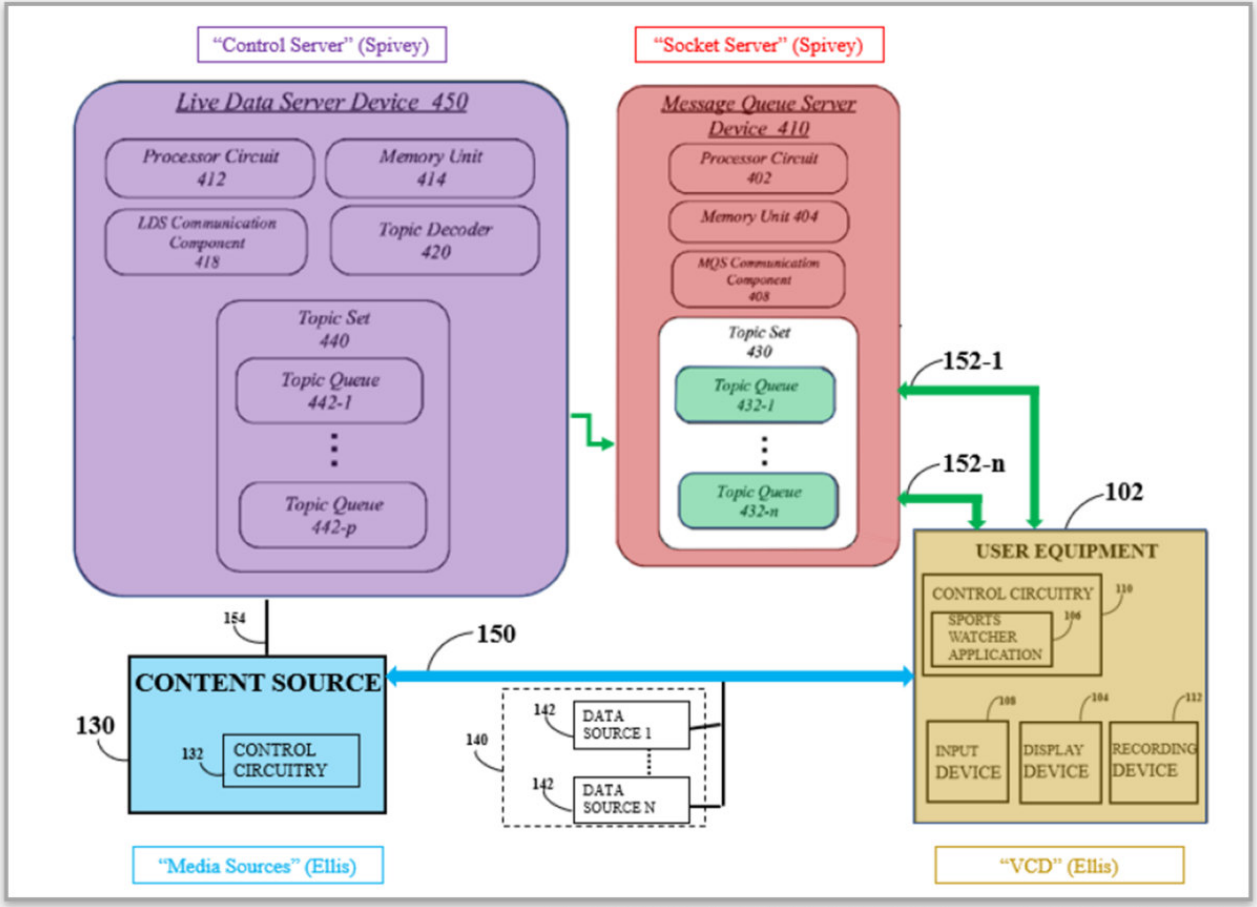


FIG. 4

Ex. 1016 (Ellis) at Fig. 1; IPR2024-01305, Paper 1 (Petition) at 13-15

Ex. 1017 (Spivey) at Fig. 4; IPR2024-01305, Paper 1 (Petition) at 19-20

Ellis + Spivey

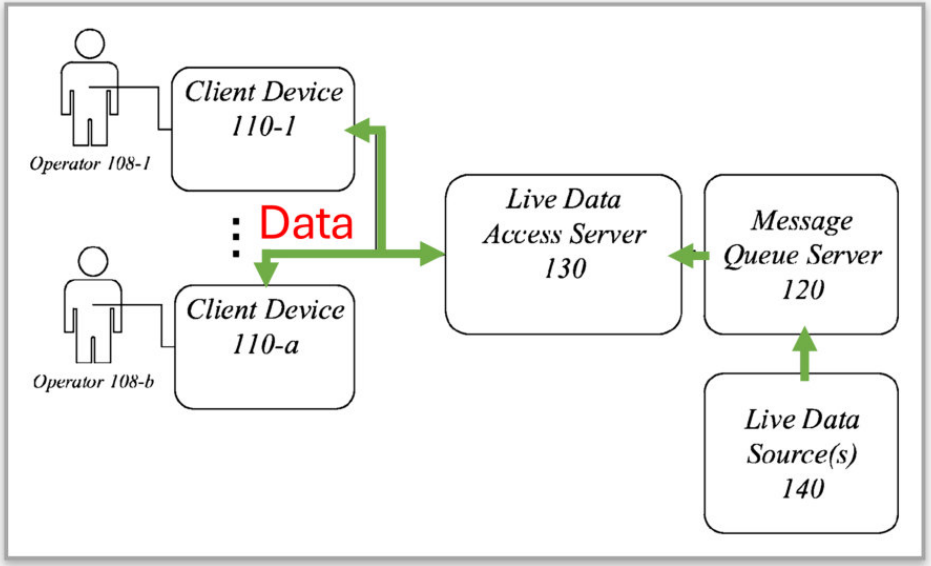


Ex. 1001 ¶ 111; IPR2024-01305, Paper 1 (Petition) at 19-20

Motivation: Data Delivery to Multiple Users With Reduced Latency

[0058] In an embodiment, message queue server device **410** may be implemented as a RABBITMQ™ server. RABBITMQ™ is open source message broker software provided by Pivotal Software, Inc. RABBITMQ™ facilitates topic queues that receive published messages and push the messages to clients that have subscribed to the topic queues. The embodiments are not limited to this implementation.

Ex. 1017 (Spivey) at ¶ 58; IPR2024-01305, Paper 22 (Reply) at 10-11



Ex. 1017 (Spivey) at Fig. 1

Motivation: Data Delivery to Multiple Users With Reduced Latency

Genius SPORTS



Dr. Stephen Wicker
Genius Sports
Technical Expert

109. 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. §VIII.C, *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 to the system," including a wide range of exemplary devices). For

Ex. 1001 at ¶ 109; IPR2024-01305, Paper 1 (Petition) at 18-20

[0096] The logic flow **1100** may push the data payload of the topic entry to the client device via the connection at block **1110**. For example, live data access server **130** may push the data payload to client device **110**, and to any other connected client devices that also requested that topic. In various embodiments, the data payload of the topic entry may be pushed to the subscribed connected client devices substantially simultaneously with the message queue server receiving the topic entry from a live data source, e.g. with a time delay of 100 milliseconds or less. In the embodiments described herein, a set of actions described as taking place "substantially simultaneously" means that the set of actions execute within the same defined period of time. The defined period of time may be of any length as suitable for a given implementation. In one embodiment, for example, the defined period of time is at least two orders of magnitude shorter than conventional time periods of legacy devices. For example, conventional time periods for legacy devices may be on the order of 30 to 45 seconds. The set of actions may be executed sequentially, in parallel, or some combination thereof within the defined time period.

Ex. 1017 (Spivey) at ¶ 96; IPR2024-01305, Paper 1 (Petition) at 33-35

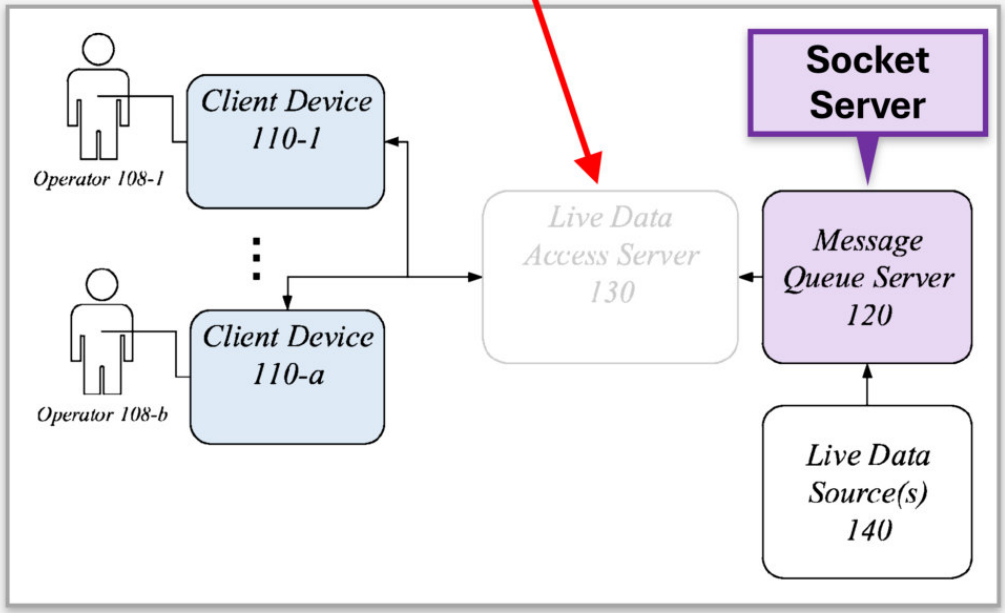
Spivey Does Not Require a Separate LDAS

PANDA argues:

- Ellis and Spivey are not compatible
- No motivation to make modifications
- Combination is inoperable

… but separate LDAS is optional

[0038] The system **100** may include a live data access server **130**. Live data access server **130** may include any



Ex. 1017 (Spivey) at ¶ 38; IPR2024-01305, Paper 1 (Petition) at 37-38 n.6

PANDA's Arguments Impermissibly Require Bodily Incorporation



***In re Keller*, 642 F.2d 413, 425 (C.C.P.A. 1981)**

"The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art."

IPR2024-01305, Paper 22 (Reply) at 7

To Extent Required By Ellis, Spivey Is Compatible With Using a Database

Spivey: Database Within MQSD

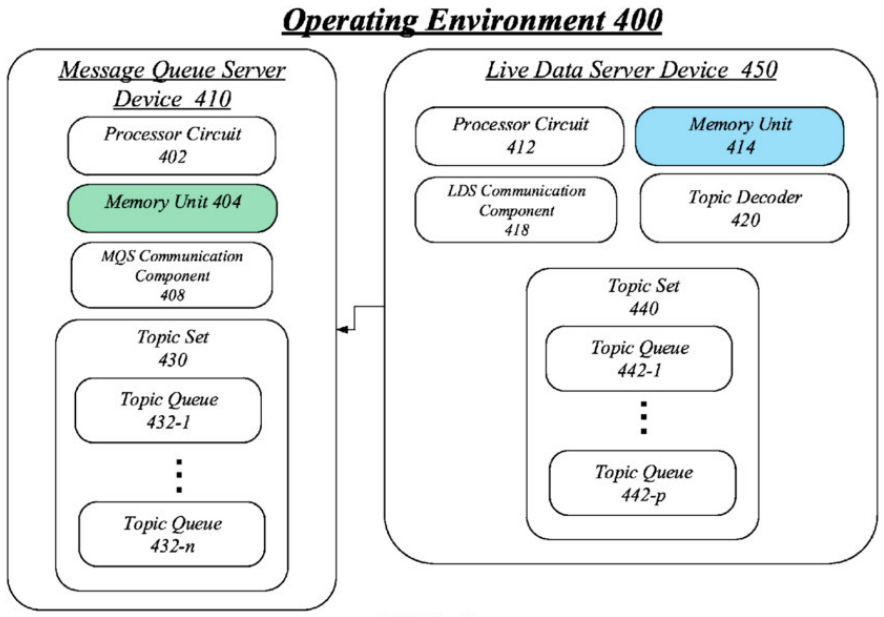


FIG. 4

[0054] Message queue server device **410** may be substantially similar to message queue server (MQS) device **310**, including a processor circuit **402**, memory unit **404**, and a MQS communication component **408**, which may be analogous, respectively, to processor circuit **302**, memory unit **304** and MQS communication component **308**. MQS device **410** may also include a topic set **430** and topic queues **432**, analogous to topic set **330** and topic queues **332**, respectively.

[0055] Live data server device **450** may be a separate computing device from MQS device **410**, and may have its own processor circuit **412** and memory unit **414**. Live data server device **450** may also include a live data server (LDS) communication component **418**. LDS communication component **418** may include hardware and/or software that allows live data server device **450** to receive live data and transmit the data payloads to MQS device **410**.

Ex. 1017 (Spivey) at Fig. 4; IPR2024-01305, Paper 1 (Petition) at 30-32

Ex. 1017 (Spivey) at ¶¶ 54-55; IPR2024-1305, Paper 22 (Reply) at 14

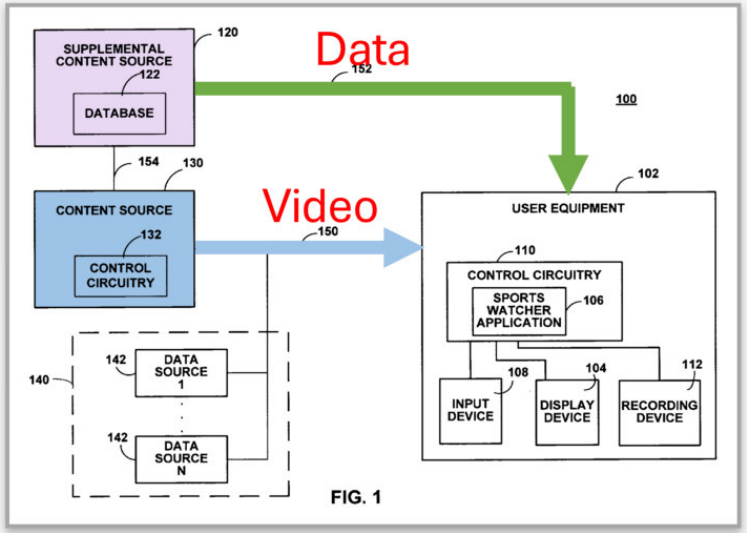
Ellis's Real-Time Data Feed Is Compatible With Push or Pull

Genius SPORTS



Dr. Stephen Wicker

Genius Sports
Technical Expert



Ex. 1016 (Ellis) at ¶41, Fig. 1;
IPR2024-01305, Paper 1 (Petition) at 52-53

[0041] Supplemental content source **120** may be any suitable content source configured to provide real-time sports scores and game summary information, tournament brackets and tournament information, sports commentary, athlete biographies, spread and wagering data, and any other sports-related information to user equipment **102**. In some embodiments, this sports-related information is provided to user equipment **102** as a plurality of real-time data feeds. Each data feed may be individually accessed or subscribed to by user equipment **102**. For example, sports score and game status information may be included in one real-time data feed, while sports commentary may be included in another feed. The sporting events with associated data available from supplemental content source **120** may include events in progress or events that have recently ended. In addition, supplemental content source **120** may include information relating to sporting events not available for viewing in media system **100**. For example, a non-televised game may nevertheless have associated sports-related information available on supplemental content source **120**.

PANDA Impermissibly Reads Synchronization Into Claims

II. THE '687 PATENT

A. Inadequacy of the Prior Art

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

49; EX-2001, §III.C.) The inventors also addressed synchronizing high quality ("e.g., high definition HD and high bit rate, such as 2 to 5 megabits per second") copies of digital content streams amongst multiple viewers—particularly a large number of viewers—while ***maintaining low latency delivery***, and also "allowing for different classes or types of viewers to flexibly access copies…via different live streaming formats." (EX-1003, 2:48-56.)

IPR2024-01307, Paper 14 (POR) at 8-9

Only Claims 4-9 of '218 Recite "Synchronized" Viewers

'218, Claim 4

4. The system of claim **1**, wherein:

in C), the at least one webserver transmits, to a second viewer client device of the plurality of viewer client devices, the first socket address of the first event socket to establish a second event information Internet communication channel between the first event socket and the second viewer client device; and

in B), the at least one socket server transmits at least some of the first event information, including the online gaming information germane to the first sporting event, to the second viewer client device via the second event information Internet communication channel, such that the online gaming information is shared in a synchronized manner by the first viewer client device and the second viewer client device.

b. Limitations 4.2

This limitation is substantially the same as limitations 1.2.1-3, which Ellis and Spivey disclose for the reasons stated above. *See* §§VIII.B.2.c, VIII.B.2.d, *supra*. This limitation adds, however, that the online gaming information is shared in a synchronized manner between VCDs. Spivey discloses this, as it teaches that "the embodiments discussed herein may reduce [] delay to an order of milliseconds (ms) (e.g., 100ms) or less, providing a significant advantage over the conventional practices." Ex.1017 ¶28. Spivey further teaches that digital content "may be pushed to the subscribed connected client devices substantially simultaneously with . . . a time delay of 100 milliseconds or less." *Id.* ¶96. According to Spivey, "'substantially simultaneously' means that the set of actions execute within the same defined period of time. The defined period of time may be of any length as suitable for a given implementation." *Id.*; Ex.1001 ¶237.

IPR2024-01310, Paper 1 (Petition) at 43-44

A POSA Would Have Been Motivated To Combine Herzog-Spivey

Herzog Lacks Only a Socket Server

Herzog

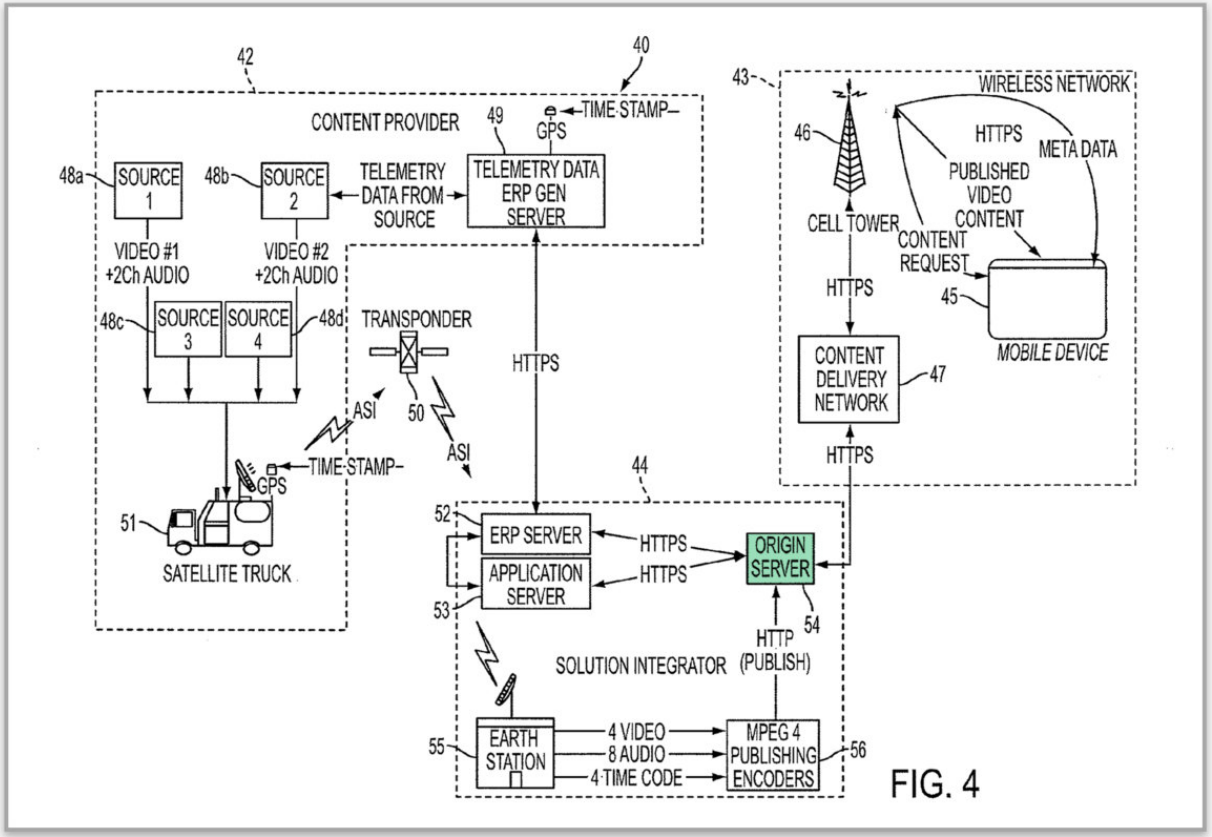


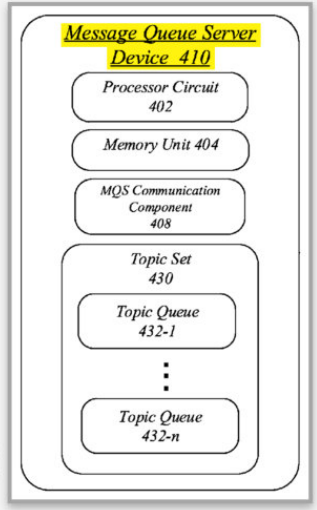
FIG. 4

Ex. 1015 (Herzog), Fig 4; IPR2024-01305, Paper 1 (Petition) at 59-60

> Herzog does not specifically disclose some backend server architecture supporting the data distribution—the claimed socket server. Ex.1001 ¶¶126, 142-43. 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*; *see also* §IV.B. *supra*. A POSA would have found it obvious to implement Herzog's Origin Server as a websocket server, as taught by Spivey, to

IPR2024-01305, Paper 1 (Petition) at 60

Spivey



Ex. 1017 (Spivey), Fig. 4; IPR2024-01305, Paper 1 (Petition) at 61

Motivation: Data Delivery to Multiple Users With Reduced Latency

Genius SPORTS



Dr. Stephen Wicker
Genius Sports
Technical Expert

109. 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. §VIII.C, *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 to the system," including a wide range of exemplary devices). For

Ex. 1001 at ¶ 109; IPR2024-01305, Paper 1 (Petition) at 18-20

[0096] The logic flow **1100** may push the data payload of the topic entry to the client device via the connection at block **1110**. For example, live data access server **130** may push the data payload to client device **110**, and to any other connected client devices that also requested that topic. In various embodiments, the data payload of the topic entry may be pushed to the subscribed connected client devices substantially simultaneously with the message queue server receiving the topic entry from a live data source, e.g. with a time delay of 100 milliseconds or less. In the embodiments described herein, a set of actions described as taking place "substantially simultaneously" means that the set of actions execute within the same defined period of time. The defined period of time may be of any length as suitable for a given implementation. In one embodiment, for example, the defined period of time is at least two orders of magnitude shorter than conventional time periods of legacy devices. For example, conventional time periods for legacy devices may be on the order of 30 to 45 seconds. The set of actions may be executed sequentially, in parallel, or some combination thereof within the defined time period.

Ex. 1017 (Spivey) at ¶ 96; IPR2024-01305, Paper 1 (Petition) at 61

Herzog: Meta-Data Is Pulled By User After Video Begins

[0074] 5. Upon viewing the live video from one or more video sources (or channels) of the live event, the user initiates a request for meta-data that is associated with the VITC time stamp of a particular video channel on the display of the video player. The latency or transaction time of the meta-data

* * *

lishing and decoding of the video. The ERP Server **84** buffers the delay with the meta-data time stamp. The video becomes the master clock of when the corresponding meta-data arrives at the application.

Ex. 1015 (Herzog) at ¶ 74; IPR2024-01305, Paper 1 (Petition) at 81-82

[0077] 8. The client application receives the meta-data having the corresponding time stamp and displays the meta-data on the video player. The meta-data is now related to the video being watched on the video player, as the meta-data is now synchronized to the video channel.

Ex. 1015 (Herzog) at ¶ 77; IPR2024-01305, Paper 1 (Petition) at 81-82

[0079] Over time, the viewer views time stamped audio/video data and separately time stamped meta-data. Both types of data are now closely related in time. So long as the viewer makes no other audio/video selection from a specific source and makes no other meta-data selection from another specific source (or time stamp), both types of data continue to be streamed for display on the video player. When the viewer makes a change on the video player, the handshaking interchange or flow shown in FIG. **6** is repeated anew.

Ex. 1015 (Herzog) at ¶ 79; IPR2024-1305, Paper 22 (Reply) at 18-19

A POSA Would Have Been Motivated to Reduce Server Load

Genius SPORTS



Dr. Stephen Wicker
Genius Sports
Technical Expert

32. Reducing the data delivery period while maintaining the video latency period allows the system additional time to process multiple user requests and alleviates demand on its components. Herzog utilizes a "pull-based" architecture, where the client application requests meta-data corresponding to the time-stamped video stream, resulting in increased server load due to the volume of individual requests: "the client application... is configured to request video and audio streaming data... [and] then... request the corresponding meta-data which has the same time code reference." *Id.*, ¶¶57 and 58. This approach contrasts with Spivey's "push-based" architecture, in which data is delivered to clients immediately as it becomes available in the queue, thereby reducing the frequency and volume of client-initiated requests to the server.

Ex. 1064 at ¶ 32; IPR2024-01305, Paper 22 (Reply) at 18-19

Roadmap

1. Overview
2. Socket Server
3. **Webserver**
4. Online Gaming Information
5. Secondary Considerations

Orchestrator and Relay Webservers Were Known and Interchangeable

PANDA



Dr. Aviel Rubin
PANDA's Technical Expert

"[T]he difference is that a relay will receive and send all of the content between clients and some source, whereas an orchestrator will point the client directly to the source and then the media will transfer without going through the webserver."

Ex. 1063 (Rubin Tr.) at 37:18-22; IPR2024-01310, Paper 24 (Reply) at 18

Herzog's Application Server Facilitates Data Delivery to Client

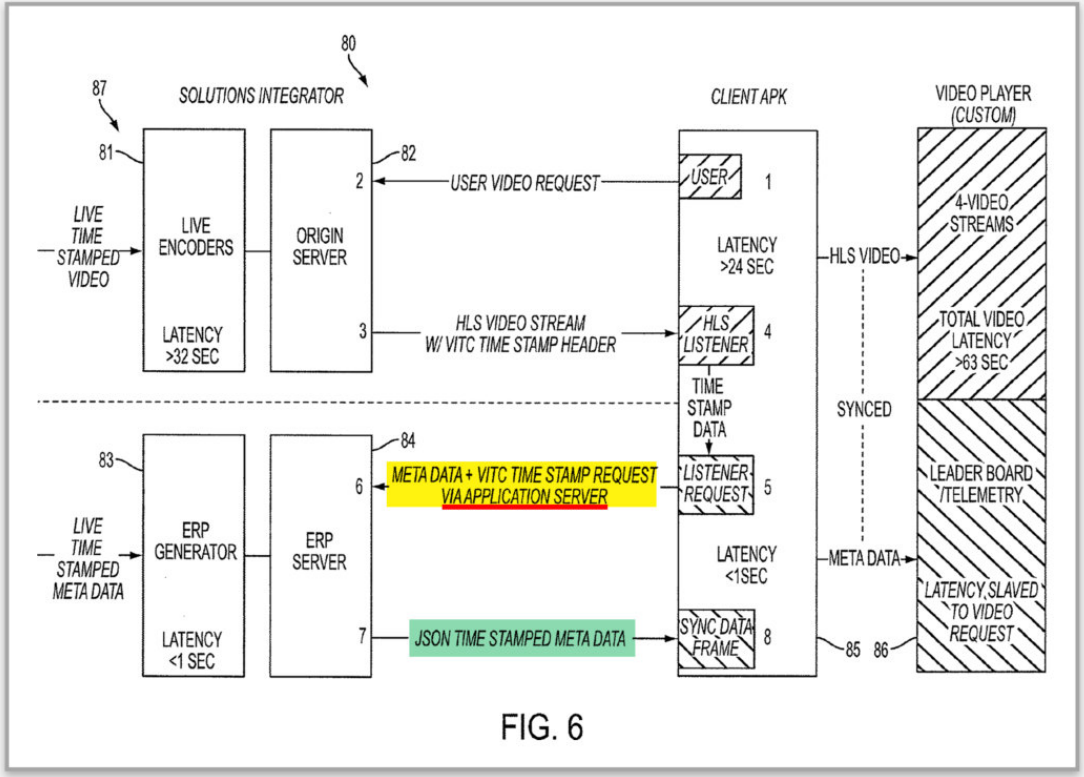


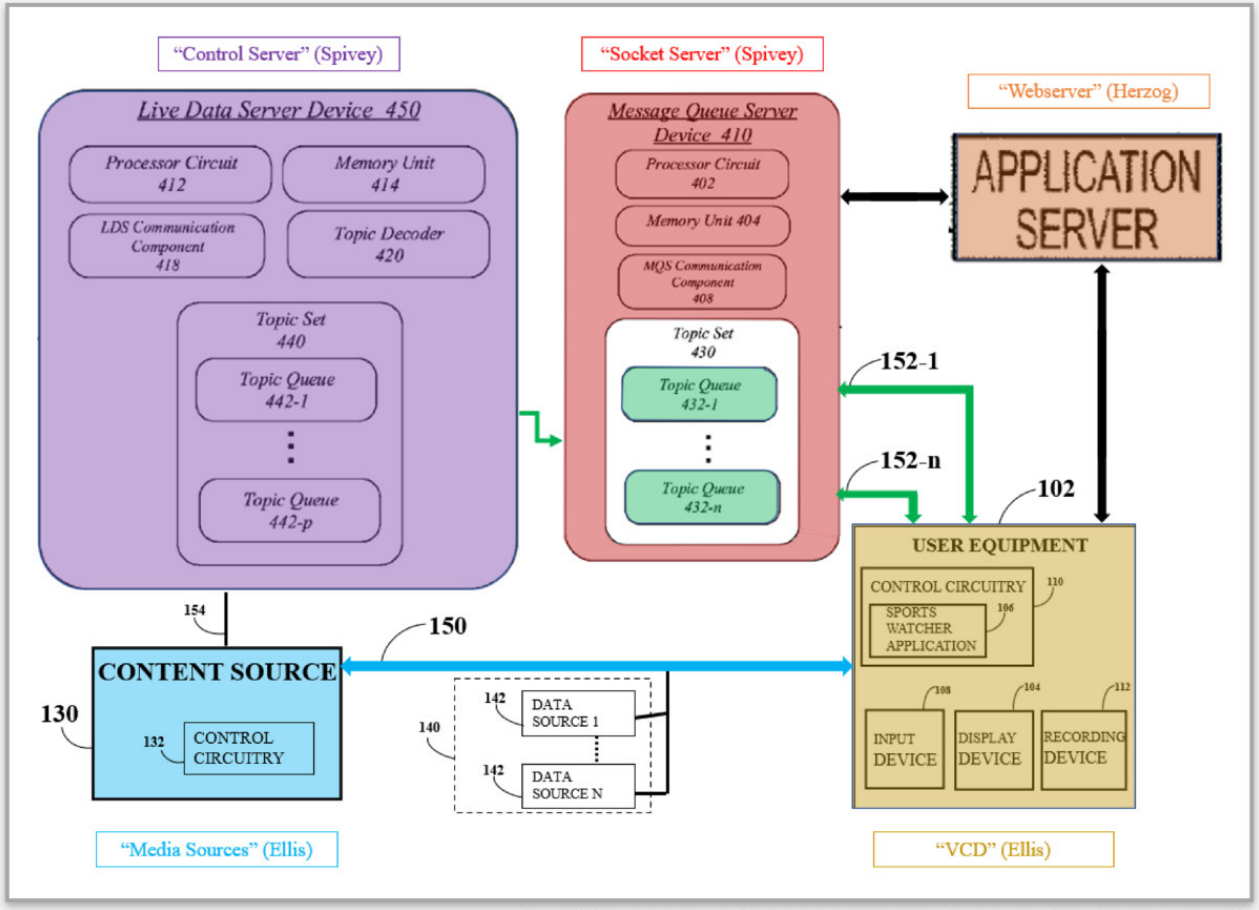
FIG. 6

Ex. 1015 (Herzog), Fig 6; IPR2024-01310, Paper 1 (Petition) at 16-18

[0058] The client application in mobile device **45** is configured to view the video and audio stream with the VITC time stamp header. At this point, the VITC time stamp is deemed to be the master time for synchronization, once the video stream locks in the VITC time code. The client application software in mobile device **45** is then configured to request the corresponding meta-data which has the same time code reference generated by the ERP generator server **49**. The application server **53**, which resides in the solution integrator **44**, is configured to receive the request from the client application software and begin sending the meta-data with the corresponding .JSON time stamp via the ERP server **52** in the solution integrator **44**. The .JSON time stamp is now slaved to the master time generated by the VITC time code. The meta-data with the .JSON time stamp is now also transmitted to the mobile device **45** by way of the content delivery network **47**.

Ex. 1015 (Herzog) at ¶ 58; IPR2024-01310, Paper 1 (Petition) at 35-37

Obvious to Have Application Server Facilitate Sending Meta-Data



Ex. 1001 at ¶ 118; IPR2024-01310, Paper 1 (Petition) at 35-37

Webserver Providing Instructions for Client to Connect Was Known

Genius SPORTS



Dr. Stephen Wicker
Genius Sports
Technical Expert

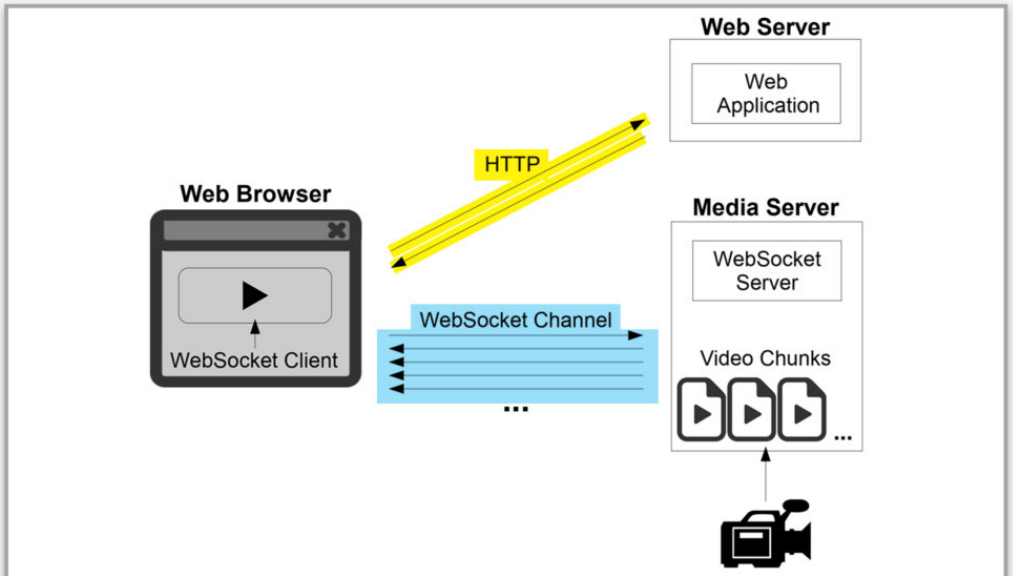


Figure 2: Proposed push-based architecture

The communication between the Web browser and the Web server will be the first to be executed, as for every website, via HTTP. After the web browser has downloaded the website, the JavaScript code on the Web Appication will attempt to start the communication via WebSocket with the Media Server.

Ex. 1068 (Iacono) at 16 and Ex. 1067 (Supplemental Wicker Decl.) ('218) ¶¶ 6- 8; IPR2024-01310, Paper 24 (Reply) at 20

Webserver Providing Instructions for Client to Connect Was Known

Genius SPORTS



Dr. Stephen Wicker
Genius Sports
Technical Expert

8. When arranged to function as an orchestrator-type web server, the web server takes on additional responsibilities, for example, delivering client-side code that initiates further connections (*e.g.*, via WebSocket) or coordinating the sequence of actions required for advanced services like live streaming.

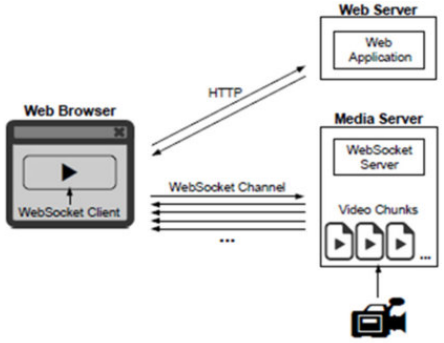


Figure 2: Proposed push-based architecture

However, this is an extension of the web servers relay function, not a replacement.

Ex. 1067 (Supplemental Wicker Decl.) ('218) ¶ 8; IPR2024-01310, Paper 24 (Reply) at 20

No Radical Difference Between Relay and Orchestrator

Genius SPORTS



Dr. Stephen Wicker
Genius Sports
Technical Expert

"There is no radical difference between a web server architecture where the web server functions as a relay-type web server and one where it functions as an orchestrator-type web server because, at their core, both architectures rely on the web server as a central point for client interaction and resource delivery."

Ex. 1067 at ¶ 6; IPR2024-01310, Paper 24 (Reply) at 20

Addition of Application Server Would Introduce No Additional Delay

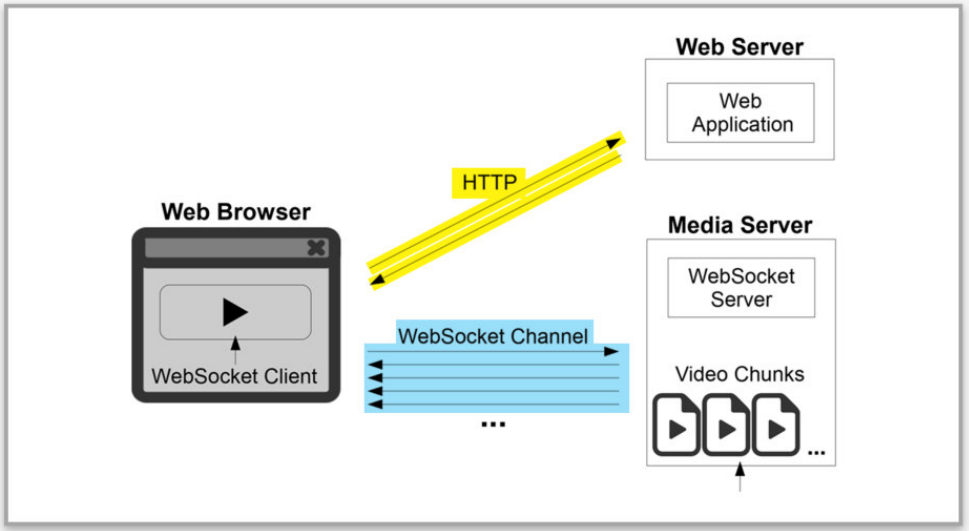
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Genius Sports
Technical Expert

"[T]he web server's involvement would be limited to coordinating the initial request and providing the necessary addressing or instructions, after which the supplemental content would flow directly to the client."

Ex. 1067 at ¶ 11; IPR2024-01310, Paper 24 (Reply) at 21



Ex. 1067 at Fig. 2; IPR2024-01310, Paper 24 (Reply) at 20

Roadmap

1. Overview
2. Socket Server
3. Webserver
4. **Online Gaming Information**
5. Secondary Considerations

No Dispute: Ellis Discloses Online Betting Information

Q. With reference to Figure 6 of Ellis, in paragraph 98, if you will, does Ellis in his disclosure enable a user to gamble or wager?

A. That's what it says.

Ex. 1063 (Rubin Tr.) at 100:20-101:1, 101:4-8; IPR2024-01311, Paper 24 (Reply) at 13

[0041] Supplemental content source **120** may be any suitable content source configured to provide real-time sports scores and game summary information, tournament brackets and tournament information, sports commentary, athlete biographies, spread and wagering data, and any other sports-related information to user equipment **102**. In some embodiments, this sports-related information is provided to user equipment **102** as a plurality of real-time data feeds. Each data feed may be individually accessed or subscribed to by user equipment **102**. For example, sports score and game status information may be included in one real-time data feed, while sports commentary may be included in another feed.

Ex. 2036 (Ellis) at ¶41; IPR2024-01311, Paper 24 (Reply) at 16

[0098] Game commentary may also be accessed from the game information screen, such as display screen **600**. After selecting commentary option **614**, the user may access multiple sources of additional information about the game, including recommendations, analysis and predictions, and odds and spreads. Game commentary may also feature scrollable text and may include images and links to video clips. Game commentary is discussed in more detail below with regard to display screen **2500** (FIG. **25**), which shows an illustrative game commentary screen.

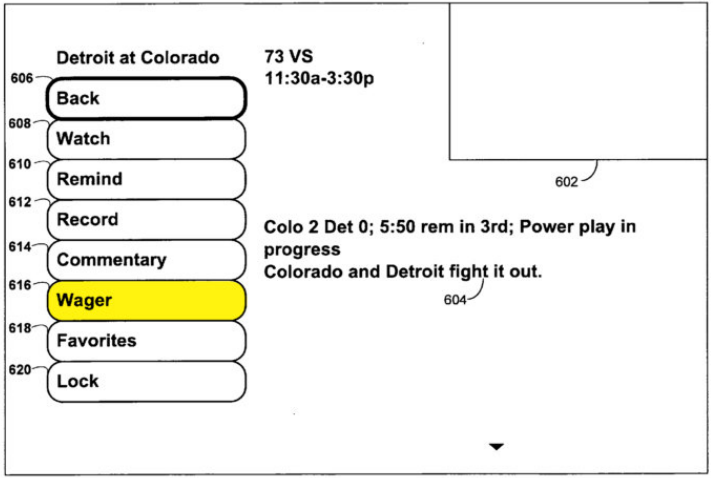


FIG. 6

Ex. 2036 (Ellis) at ¶98 and Fig. 6; IPR2024-01311, Paper 24 (Reply) at 13

Herzog Teaches Online Gaming Information

I. "online gaming information" ('218 Patent, Claims 1, 3–4, 6, 21, 25; '088 Patent, Claim 6)

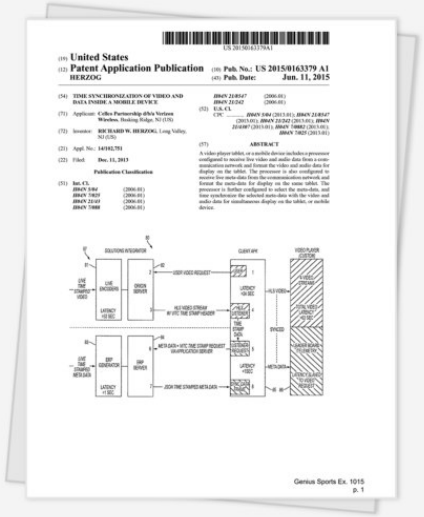
PANDA's Construction	Defendants' Construction
Plain and ordinary meaning	Plain and ordinary meaning, which is "information used for, or relevant to, gaming conducted over the Internet"

This dispute is like the dispute over "persistent connection" in that Defendants accept a "definition" offered by PANDA in its opening brief. Defendants originally proposed a construction that limited the meaning of "gaming" to video games. (*See* Hr'g Tr., Dkt. No. 212 at 56:1–7 (noting Defendants' original construction of "information about a video game played over the Internet").) In its brief, PANDA stated the patents use this term "consistent with its plaining meaning . . . e.g., information used for, or relevant to, gaming conducted over the Internet." (Dkt. No. 149 at 14.) In

Term No.	Disputed Term	The Court's Construction
31	"online gaming information" ('218 Patent, Claims 1, 3–4, 6, 21, 25; '088 Patent, Claims 6)	Plain and ordinary meaning

Ex. 1069 at 25-27

Herzog's Telemetry Data Is Relevant to Online Gaming



(19) United States
(12) Patent Application Publication
HERZOG

(10) Pub. No.: US 2015/0163379 A1
(43) Pub. Date: Jun. 11, 2015

(54) TIME SYNCHRONIZATION OF VIDEO AND DATA INSIDE A MOBILE DEVICE

(71) Applicant: Cellco Partnership d/b/a Verizon Wireless, Basking Ridge, NJ (US)

(72) Inventor: RICHARD W. HERZOG, Long Valley, NJ (US)

(21) Appl. No.: 14/102,751

(22) Filed: Dec. 11, 2013

Publication Classification

(51) Int. Cl.
H04N 5/04 (2006.01)
H04N 7/08 (2006.01)
H04N 21/43 (2006.01)
H04N 7/088 (2006.01)
H04N 21/8547 (2006.01)
H04N 21/242 (2006.01)

(52) U.S. Cl.
CPC H04N 5/04 (2013.01); H04N 21/8547 (2013.01); H04N 21/242 (2013.01); H04N 10/4087 (2013.01); H04N 7/0882 (2013.01); H04N 7/0825 (2013.01)

(57) ABSTRACT

A video player tablet, or a mobile device includes a processor configured to receive live video and audio data from a communication network and format the video and audio data for display on the tablet. The processor is also configured to receive live meta-data from the communication network, and format the meta-data for display on the same tablet. The processor is also configured to synchronize in real time or near time synchronize the selected meta-data with the video and audio data for simultaneous display on the tablet, or mobile device.

Genius Sports Ex. 1015
p. 1

For example, the event may be an Indianapolis Car Race; the video and audio data may be multiple video/audio streams of race cars and drivers, as they are imaged at different locations on the race track; and the telemetry data (meta-data) may include varying parameters regarding the status of each car and driver in the race. Such parameters may include, for example, lap number, car speed and acceleration, tire pressure, etc. In a car race, there may be as many as 50 different

Ex. 1015 (Herzog) at ¶ 45; IPR2024-01311, Paper 24 (Reply) at 17-18

Roadmap

1. Overview
2. Socket Server
3. Webserver
4. Online Gaming Information
5. **Secondary Considerations**

No Nexus

Nexus Is Presumed Only if "Co-Extensive"

- Secondary considerations evidence must bear a nexus to the claimed invention. *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011)



A patentee is entitled to a presumption of nexus "when the patentee shows that the asserted objective evidence is tied to a specific product and that product 'embodies the claimed features, and is coextensive with them.'"

Fox Factory, 944 F.3d at 1373 (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018))

PANDA Repeats Same Arguments Board Already Rejected at Institution

Institution Decision

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

IPR2024-01307, Paper 8 (Institution Decision) at 40

Patent Owner Response

The benefits and advantages highlighted by the industry result directly from the claims—*i.e.*, the architecture discussed above (including a socket server and control server), as well as the system's ability to "*provid[e] a first/second plurality of copies of a first/second live stream of digital content*" (*e.g.*, Claim 19).

Accordingly, Patent Owner's SportsCastr and PANDA Studio, which implemented the patented method, received widespread industry praise as a direct result of the claimed invention. In addition, others, including Petitioner, have copied

IPR2024-01307, Paper 14 (POR) at 69, 75

No Long-Felt Need

No Long-Felt Need

PANDA argues invention solved issues arising from hard-embedded event info

> Prior to the claimed invention, conventional video streaming systems hard-embedded event information, which caused processing overhead and limited licensing and rights. (EX-1003, 28:49-26:2; EX-2001, ¶¶313-315.) Another issue

IPR2024-01307, Paper 14 (POR) at 66

… yet concedes Ellis discloses separate video and event info streams

> Ellis describes a generic two-track architecture whereby the user's equipment "receives content in the form of signals from content source 130 and/or supplemental content source 120 over communications paths 150 and 152, respectively," for example, as shown in FIG. 1 (below). (EX-1016, ¶39, FIG. 1.) The viewer may view content from content source 130 via communication path 150, while also receiving data from supplemental content source 120 via communication path 152 (e.g., data used to update the scoreboard). (EX-1016, ¶¶39-41, FIG. 1; EX-2001, ¶¶114-119.)

IPR2024-01307, Paper 14 (POR) at 9

No Long-Felt Need

PANDA argues claimed invention satisfied long-felt need

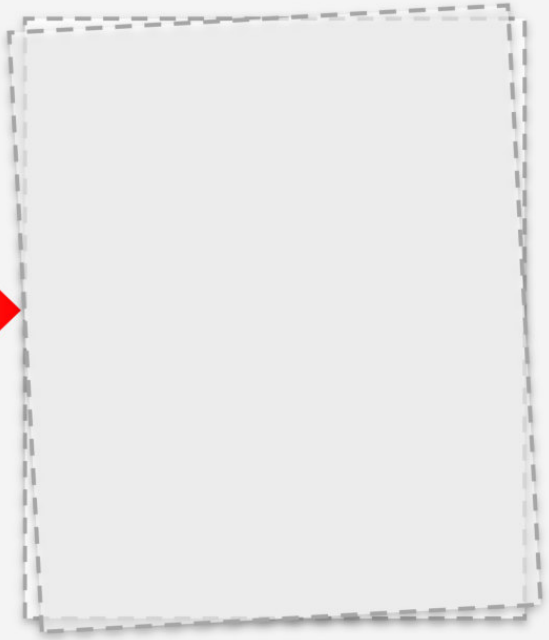
> The claimed invention satisfied the long-felt need for an innovative system that allows broadcasters to deliver synchronized, low-latency digital content, such as a video content, and audio content with scalable, flexible access for different types of viewers and service qualities. (EX-1003, 2:40-56; §§II.A-B, *supra*; EX-2001, ¶¶313-315; EX-2006; EX-2007.)

IPR2024-01307, Paper 14 (POR) at 66

> In sum, the inventors were the first to recognize that incorporating dedicated socket servers, web servers, and control servers within a livestreaming server architecture could improve network functionality, enabling scalable, low-latency viewing of live events and commentary by many viewers. The patented claims expressly contemplate and claim these features—*i.e.*, the system comprising "*a control server to periodically retrieve*" (*e.g.*, claim 19) and "*at least one socket server communicatively coupled to the control server*" (*e.g.*, claim 19).

IPR2024-01307, Paper 14 (POR) at 67-68

… yet none of these features are required by the claims



No Long-Felt Need

Patent Owner's evidence also suffers from other deficiencies. For example, Patent Owner's evidence (Prelim. Resp. 62–64) does not establish *long felt* and *unsolved* need. Dr. Rubin cites an article from 2015 describing "[b]roadcast latency [being] recognized by stream platforms around [the] mid-2010s" (Ex. 2001 ¶ 73 (citing Ex. 2034)), but the '687 patent claims priority to provisional applications filed in 2016 and 2017. Ex. 1003, code (60), 1:20–40. Moreover, certain of Patent Owner's industry praise

IPR2024-01307, Paper 8 (Institution Decision) at 41

No Industry Praise