

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

SCALE VIDEO CODING LLC,
Patent Owner.

IPR2024-01371
Patent 11,019,372 B2

Before JUSTIN T. ARBES, MICHAEL T. CYGAN, and
PETER D. SHAPIRO, *Administrative Patent Judges*.

SHAPIRO, *Administrative Patent Judge*.

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

I. INTRODUCTION

Cisco Systems, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–3, 5–8, 10–13 and 15 of U.S. Patent No. 11,019,372 B2 (Ex. 1001, “the ’372 patent”). Paper 1 (“Pet.”). Scale Video Coding LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Petitioner then filed a Reply. Paper 7. Patent Owner filed a responsive Sur-reply. Paper 8.

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” *See* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the Director.”). For the reasons stated below, we determine that Petitioner has not established a reasonable likelihood that it would prevail with respect to at least one claim. We, therefore, deny Petitioner’s request to institute *inter partes* review.

A. Related Matters

The parties identify *Scale Video Coding LLC v. Cisco Systems, Inc.*, No. 4-23-cv-00803 (E.D. Tex.) (“the parallel litigation”), and *Scale Video Coding LLC v. Cisco Systems, Inc.*, No. 4-23-cv-00095 (E.D. Tex.), as related court cases. Paper 9, 1; Paper 3, 2.

B. The ’372 Patent

The ’372 patent is titled “Layered Multicast and Fair Bandwidth Allocation and Packet Prioritization” and issued May 25, 2021, from U.S. Application No. 15/010,573 filed Jan. 29, 2016. Ex. 1001, codes (21), (22), (45), (54). The ’372 patent relates to “a congestion control system that may prioritize designated layers of data within a data stream over other layers of

the same data stream.” *Id.* at code (57). This approach can enable efficient multicast video transmission over various network and device conditions. *See id.* at 5:4–21. One way the ’372 patent describes accomplishing this is by coding the video data streams into layers. *See id.* at 6:64–7:17, 35:15–39. Claim 1 is directed to a special type of router called a “video router” that will forward the base layer then selectively forward one or more additional enhancement layers as the network conditions allow. *See id.* at 35:15–39. In this way, a minimum level of quality can be maintained for multicast video streams despite variable network conditions. *See id.* at 21:53–66. In contrast, without this type of layer prioritization, packets would be randomly dropped by overloaded routers, potentially causing the video quality to become unacceptable. *See id.* at 1:59–2:10.

C. Illustrative Claims

Claims 1–3, 5–8, 10–13 and 15 are challenged, and claims 1, 6 and 11 are independent. Claim 1 is illustrative of the claimed subject matter and is reproduced below.

1. [1pre] A video router, comprising:

[1.1] a memory, and

[1.2] a processor, wherein the processor executes instructions stored in the memory to cause the video router to:

[1.3] receive a layered video data stream including a base layer and a set of enhancement layers,

[1.4] identify bandwidth-limited conditions of an internet protocol network between the video router and a plurality of video receivers,

[1.5] forward the base layer from the video router to at least two of the plurality of video receivers via the internet protocol network, and

[1.6] selectively forward one or more of the set of enhancement layers, but fewer than all of the set of enhancement layers, to at least two of the plurality of video receivers through the internet protocol network based upon the identified bandwidth-limited conditions, and

[1.7] wherein the video router transmits the layered video data stream according to an internet protocol:

[1.8] wherein each layer of the layered video data stream comprises data packets, each of which is encoded with a sequence number and a layer identifier, and

[1.9] wherein the layer identifier for each data packet is based upon a layer to which the packet belongs.

Ex. 1001, 35:15–39 (bracketed designations added by Petitioner (*see* Pet. i–iv)).

D. Asserted Grounds of Unpatentability

Petitioner, supported by the declaration of Sandeep Chatterjee, Ph.D. (Ex. 1004), asserts the following grounds of unpatentability (Pet. 2–3)¹:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 5–8, 10–13, 15	103	Shao-028 ²
1–3, 5–8, 10–13, 15	103	Shao-028, Shao-423 ³

¹ We apply the pre-AIA version of 35 U.S.C. § 103 because the claims at issue have an effective filing date prior to March 16, 2013, the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”). *See* Ex. 1001, code (60).

² U.S. Patent No. 7,093,028 B1 (Ex. 1005, “Shao-028”)

³ U.S. Patent Application Publication No. 2001/0047423 A1 (Ex. 1006, “Shao-423”)

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

In order to determine whether an invention would have been obvious at the time the invention was made, we consider the level of ordinary skill in the pertinent art at the critical time. *See Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). The resolution of this question is important because it allows us to “maintain[] objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation omitted). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *See Innovention Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Petitioner asserts that a person of ordinary skill in the art (“POSITA”) “would have had a working knowledge of the telecommunications and networking art that is pertinent to the ’372 [p]atent” and “would have had a bachelor’s degree in electrical engineering, computer science, computer engineering, or an equivalent [field,] and two years of relevant experience working in telecommunications, networking, and video encoding, decoding, and routing.” Pet. 3. Petitioner also states that “[l]ack of professional experience can be remedied by additional education, and vice versa.” *Id.*

(citing Ex. 1003 ¶ 22). Patent Owner states that “[f]or the purposes of this Preliminary Response only, Patent Owner adopts Petitioner’s alleged definition.” Prelim. Resp. 13.

The level of ordinary skill in the art can be evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). As Petitioner’s description of a person of ordinary skill appears commensurate with the subject matter before us, we apply Petitioner’s definition for purposes of this Decision.

B. Claim Construction

We interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2024). In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (citations omitted) (en banc).

Petitioner originally asserted that, “the Board need not expressly construe the claim terms.” Pet. 5. Patent Owner responded “[f]or purposes of this Preliminary Response only, Patent Owner presents no express constructions of the claims.” Prelim. Resp. 14. However, Petitioner filed a Reply addressing the claim terms “identifying bandwidth-limited conditions,” “base layer” and “enhancement layers,” alleging that Patent Owner offered implicit constructions for those terms in the Preliminary Response. *See* Reply 1–5. Patent Owner filed a Sur-reply responding to the Reply. *See* Sur-reply 1–5.

Based on the record before us, we see no need for express construction of any term for the purposes of this Decision. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). As discussed below, regardless of the construction of the term “identify[ing] bandwidth-limited conditions,” we find that Petitioner has not demonstrated a reasonable likelihood of showing that Shao-028 teaches or suggests “identify[ing] bandwidth-limited conditions . . . between the video router and a [plurality/set] of video receivers,” and therefore we need not address the issues raised by the additional briefing related to the base layer and enhancement layers. Additionally, we explain further below why our analysis does not turn on the alleged implicit claim construction of “identify[ing] bandwidth-limited conditions,” i.e. whether or not that claim term can encompass receiving from clients or end systems downstream feedback/control that incorporates bandwidth-limited conditions in it. *See* Reply 1.

C. Overview of the Asserted Prior Art

1. Shao-028 (Ex. 1005)

Shao-028 is titled “User and Content Aware Object-Based Data Stream Transmission Methods and Arrangements” and describes a “scalable video transmission scheme . . . in which client interaction and video content itself are taken into consideration during transmission.” Ex. 1005, codes (54), (57). Under this scheme, “different types of video object information, such as, e.g., control information, shape information, motion information and texture information,” can be associated with different “transmission priority level[s].” *Id.* at 2:44–49, 8:30–33. The scalable video transmission scheme in Shao-028 is described as follows:

when network congestion occurs or there is not enough network bandwidth to transmit all of the prioritized information about an object, some (e.g., lower priority) information may be dropped at the server or at an intermediate network node to reduce the bit rate.

Ex. 1005, code (57).

To do this, Shao-028 describes a “video transmission agent” or “VTA,” which can be implemented on a router or other network device, that “receive[s] video data bitstreams, . . . filter[s] the received data bitstream by selectively discarding data packets having lower priorities, and send[s] the resulting filtered data bitstream to a client 13 and/or a next (downstream) VTA 84.” Ex. 1005, 13:9–14, 13:24–26. Shao-028 identifies different types of base layers and enhancement layers for video objects that can be prioritized in this way. *See, e.g., id.* at 5:39–62.

An example of a network implementing this scalable transmission scheme is shown in Figure 3 of Shao-028, which is reproduced below.

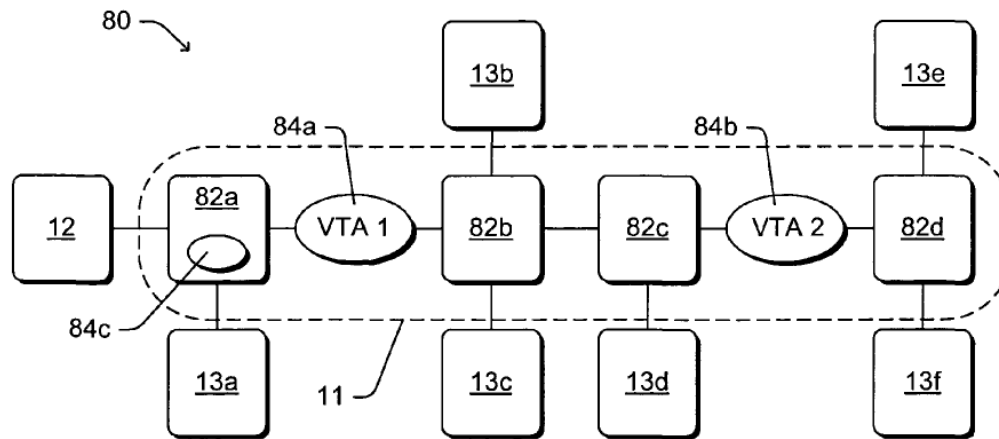


Fig. 3

Figure 3 is a “block diagram depicting a user-aware object based video multicasting system architecture [that] can be employed in [a] communication system.” Ex. 1005, 3:44–46. Shao-028 further describes the system in Figure 3:

In FIG. 3, server device 12 is operatively coupled to a first network node 82a. Network nodes 82a–d can be any type of general purpose and/or special purpose computing/communication device, such as, a server, a gateway, a router, a computer, etc. Client device 13a is operatively coupled to receive data packets from network node 82a. The output of network node 82a is provided to a first video transmission agent (VTA) 84a. VTA 84a is configured [to] selectively filter out or otherwise drop data packets according to their respective transmission priority levels based on network and/or other recognized needs (e.g., downstream feedback/control).

Id. at 8:50–60. Furthermore, “[a]n optional third VTA 84c is also shown as being included within network node 82a.” *Id.* at 9:5–6. “VTA 84c may be operatively configured to selectively control the data packets that are provided to client device 13a.” *Id.* at 9:6–8.

According to Shao-028, “VTAs will filter out data packets from upstream according to downstream requirements (e.g., according to the network link and a particular client[’s] capabilities).” Ex. 1005, 10:26–28. “For example, data packets containing texture information for a particular video object may be dropped by the VTA.” *Id.* at 10:28–30.

2. *Shao-423 (Ex. 1006)*

Shao-423 is titled “Generalized Differentiation Methods and Arrangements for Adaptive Multimedia Communications” and describes that “[v]arious methods and arrangements are provided for transmitting adaptive multimedia content over networks that provide differential services.” Ex. 1006, codes (54), (57).

Similar to Shao-028, Shao-423 recognizes that “[d]ifferent types of information within a compressed bitstream can have different importance levels” which can be used to implement layered coding by separating this information into a “base layer and several enhancement layers.” Ex. 1006 ¶¶ 105–106. The base layer is prioritized over the enhancement layers. *See id.* Shao-423 describes an embodiment to implement this scheme using an “IPv6” header in the packets that includes a “flow label field” that has a “layer identifier” in it. *Id.* ¶¶ 50, 53, 102–103. Using this scheme can result in improved multimedia communications and optimal playback quality of video bitstreams under resource and cost constraints. *Id.* ¶¶ 10, 108.

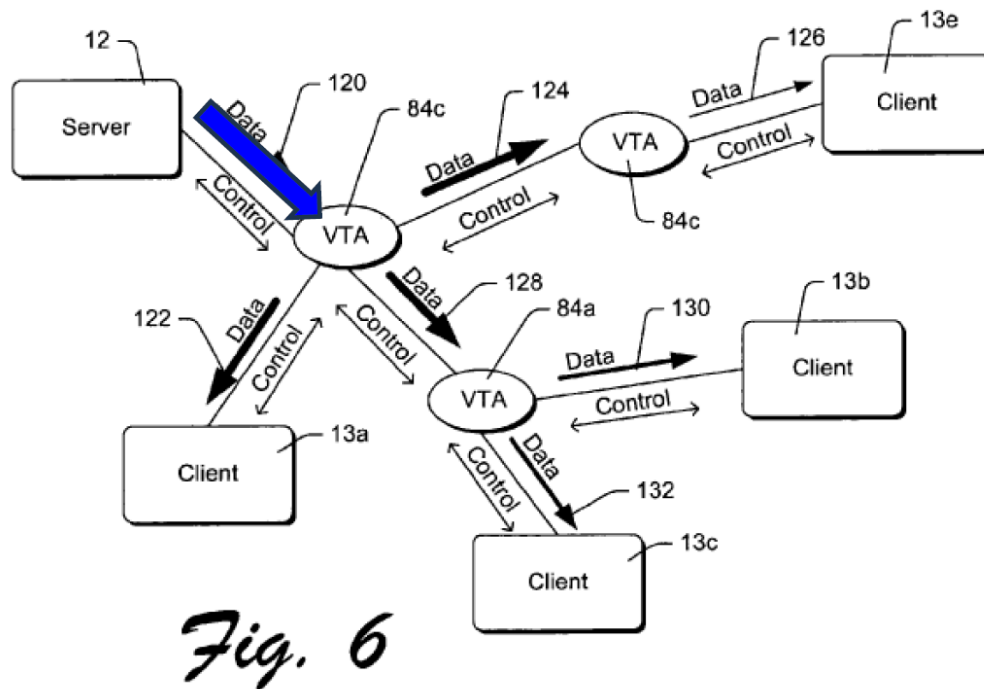
D. Asserted Obviousness

In Ground 1, Petitioner asserts that independent claims 1, 6 and 11 would have been obvious over Shao-028. Pet. 8–51. All three independent claims recite, in relevant part, “identify[ing] bandwidth-limited conditions of an internet protocol network between the video router and a [plurality/set] of video receivers.” Ex. 1001, 35:22–24, 35:62–64, 36:38–40. Thus, all three independent claims require identifying bandwidth-limited conditions between the video router and a plurality of clients (video receivers) receiving the video data stream. *Id.*

Petitioner contends that Shao-028 teaches this limitation in three different ways: 1) “by ‘meet[ing] [Quality of Service] QoS requirements,’” 2) teaching that “upstream congestion is ‘determined by the link state between the VTA and its next upstream VTA (or the server 12 if it has no upstream VTA)’ and downstream congestion is ‘determined by (Capacity, Requirement) of all its next downstream VTAs and the clients connecting directly to this VTA,’” and 3) by its discussion of “other recognized needs

(e.g., downstream feedback/control)” including “control requests from the client device.” Pet. 21–32 (emphasis omitted).

Patent Owner disputes that any of these aspects of Shao-028 teach identifying bandwidth-limited conditions in the links between the video router and the client devices. Prelim. Resp. 15–30. Specifically, Patent Owner asserts “‘QoS requirements’ are considered by the server 12, not by the VTA, in creating a ‘differentially prioritized’ video stream.” *Id.* at 24 (emphasis omitted) (quoting Ex. 1005, 8:24–49). Patent Owner annotates Figure 6 of Shao-028 to illustrate this, which is reproduced below (Prelim. Resp. 26):



Annotated Figure 6 illustrates an embodiment implementing the differential services network in Shao-028 that is designed to meet QoS requirements, including a blue arrow added by Patent Owner. *See* Ex. 1005, 3:55–57, 8:12–45, 9:54–10:5. According to Patent Owner, server 12 considers “‘QoS requirements’ of the various client devices in the process of creating a

‘differentially prioritized data stream,’” which is indicated by the blue arrow. Prelim. Resp. 24–26.

Regarding Petitioner’s second argument, Patent Owner asserts that “[Shao-028] does **not** teach that ‘upstream congestion is ‘determined by the link state between the VTA and its next upstream VTA’” or that ‘downstream congestion is ‘determined by (Capacity, Requirements).’” Prelim. Resp. 27. “Instead, ‘***the Capacity of a VTA*** is determined by the link state between the VTA and its next upstream VTA.’” *Id.* at 27–28 (quoting Ex. 1005, 13:39–40). “Similarly, the Requirement of a client is not indicative of ‘bandwidth-limited conditions’ between a VTA and the client; instead, it is ‘determined by user’s preference and interactivity behavior.’” *Id.* at 28 (quoting Ex. 1005, 13:54–55).

Regarding Petitioner’s third argument, Patent Owner disputes that “other recognized needs (e.g., downstream feedback/control)” teaches identifying bandwidth-limited conditions. Prelim. Resp. 29. “Petitioner does not demonstrate how the mere receipt of such information ‘identifies bandwidth-limited conditions’ between the VTA and a plurality of video receivers.” *Id.* at 30.

We are persuaded by Patent Owner’s arguments that Petitioner has not shown a reasonable likelihood that any of the three cited aspects of Shao-028 teach or suggest that bandwidth-limited conditions are identified *on the link between the video router and the client devices* as required by the claims. To the contrary, the only specific discussion of identifying bandwidth in Shao-028 says that it takes place upstream of the video router, rather than downstream in the link in question. *See* Ex. 1005, 13:39–40. Moreover, the control requests from the client devices do not convey

bandwidth conditions at all. We address each of the three arguments from Petitioner on this limitation below.

1. Meeting Quality of Service Does Not Include Identifying Bandwidth-Limited Conditions on the Claimed Link

On this record, we are persuaded by Patent Owner’s arguments that none of the portions of Shao-028 that Petitioner cites about meeting QoS requirements teach or suggest identifying bandwidth-limited conditions in the link between the VTA and the client devices. At most, the cited portions seem to indicate that bandwidth congestion generally is measured/identified by some device on the network, but do not seem to indicate which device is measuring or where the bandwidth is being measured. *See, e.g.*, Ex. 1005, 8:43, 1:54–63 (“when the Internet is congested, some of the data packets may be dropped or otherwise lost during transmission”), 8:14–23 (dropping lower priority packets “allows for different QoS’s to be provided based on the importance associated with the user and/or information content”), 1:45–53 (“lost or untimely receipt of data packets” can result in failure to meet the expected or required QoS); 14:9–12 (“under the same network bandwidth and packet loss conditions,” Shao-028’s “methods and arrangements perform better than traditional approaches”); 13:14–22 (“VTA 84 may also be configured to receive requests from one or more clients and/or other VTAs, act upon request, . . . provide bandwidth allocation coordination among multiple data bitstreams, and/or even provide dynamic bandwidth re-allocation according to the semantic information of [a] video object”); 11:18–21 (“due to the heterogeneity of the Internet a single sender transmission rate cannot satisfy the different bandwidth requirements of different clients”); 10:1–5 (“[In view of] network related constraints,” “the

VTAs are able to respond dynamically to the needs of the clients. . . . Thus, both network and user interactivity behaviors are taken into consideration.”).

As such, on this record, Patent Owner persuades us that the cited portions of Shao-028 do not teach or suggest identifying bandwidth-limited conditions between the video router (VTA) and the client devices. The statements about providing bandwidth allocation merely indicate that the VTAs prioritize packets.

2. *Capacity and Requirements Do Not Relate to the Bandwidth Between the VTA and Client Devices*

Regarding Petitioner’s arguments about Capacity and Requirements, we are unpersuaded on this record that the cited portions of Shao-028 teach or suggest identifying bandwidth-limited conditions in the link between the video router (VTA) and the client devices as required by the claims. The following portions of Shao-028 are cited for this argument:

For example, in a multicasting session, every VTA and client is associated with a two element set, namely “Capacity” and “Requirement”. Capacity represents the amount of resources available for a video object in the VTA or the end system of the user to handle the video object. Requirement represents the amount of the resource for a video object required by the VTA or the user. Concerning the network bandwidth, the Capacity of a VTA is determined by the link state between the VTA and its next upstream VTA (or server 12 if it has no upstream VTA). Let us assume that the capacity of the sender is the bit rate of the original bitstream, denoted as $RATE_s$. However, the Requirement of a VTA is determined by (Capacity, Requirement) of all its next downstream VTAs and the clients connecting directly to this VTA.

Ex. 1005, 13:33–47; *see* Pet. 28–29.

As described above, Requirement in Shao-028 is “the amount of the resource for a video object *required* by the VTA or the user.” Ex. 1005,

13:38–39 (emphasis added). Therefore, Requirements are “determined by the user’s preference and interactivity behavior.” *Id.* at 13:54–55; *see also* Prelim. Resp. 28–29; Ex. 2001 ¶ 100. Petitioner does not sufficiently explain how these “user’s preference” and “interactivity behavior” encompass identifying bandwidth limited conditions on the link between the VTA and the client devices, nor do we see any connection between them.⁴

That leaves Capacity, which Shao-028 says is “the amount of resources available for a video object in the VTA or the endsystem of the user to handle the video object.” *Id.* at 13:35–37. This does not involve the bandwidth between the VTA and client devices, and is instead focused on the capacity of those individual network elements to “handle the video object[s].” *Id.* Moreover, network bandwidth appears to be generally accounted for in this scheme by accounting for “the link state between a VTA and its next upstream VTA (or server 12 if it has no upstream VTA).” *Id.* at 13:38–42. The cited portions of Shao-028 do not indicate how this link state is measured, but, even if it is done by the VTA, the upstream link state from the VTA is what is described as being measured rather than identifying bandwidth on the downstream link to the client device that is in the claims. *See id.* at 9:54–58, 13:35–39, 13:44–47.

⁴ Petitioner’s declarant, Dr. Chatterjee, cites a formula for calculating Requirement, which incorporates the Capacity at each VTA in the network between the VTA in question and the client to which the video object is being transmitted. *See* Ex. 1003 ¶ 119 (citing Ex. 1005, 13:42–61). As detailed below, since Capacity at a VTA does not incorporate bandwidth-limited conditions on the link to the client, the cited formula based on that Capacity does not do so either.

3. *Downstream Feedback/Control Requests Do Not Include Bandwidth*

Finally, Petitioner argues that control requests from the client identify bandwidth-limited conditions to the VTAs “based on network and/or **other recognized needs (e.g., downstream feedback/control).**” Pet. 30–32 (citing Ex. 1005, 8:57–60; 8:66–9:2 (“VTA 84b . . . selectively filter[s] out or otherwise drop[s] data packets according to their respective transmission priority levels **based, again, on network and/or other recognized needs.**”)). Petitioner additionally cites to Shao-028’s disclosure that “VTAs will filter out data packets from upstream according to downstream requirements (e.g., according to the network link and **a particular client[']s capabilities).**” Pet. 30 (quoting Ex. 1005, 10:26–28). Petitioner continues:

Shao-28 explains that information related to a client’s needs and/or capabilities are signaled as feedback is received at a VTA Router in the form of “**control requests from the client device.**” Ex. 1005, 3:4–10. Shao-028 further explains that “**the control paths provide a mechanism for negotiating or otherwise establishing** what object data 14 needs to be transmitted and how best to allocate limited bitrate among multiple video objects according to network state and users’ interaction.” Ex. 1005, 10:13–15. Ex. 1003, ¶ 121.

Pet. 31.

According to Petitioner, “Shao-028 therefore also explains that a client (or ‘receiver’) is involved in ‘identify[ing] bandwidth-limited conditions of an internet protocol network between the video router and a plurality of video receivers’ by signaling information related to its needs to the VTA Router in the form of feedback.” Pet. 31–32 (emphasis omitted) (citing Ex. 1003 ¶¶ 121–122).

Patent Owner disputes that the claim term “identify[ing] bandwidth-limited conditions” could include receiving control requests from

downstream client devices. Prelim. Resp. 29–30. Reply and Sur-Reply briefs were filed addressing this claim construction argument. Patent Owner also argues that:

Petitioner tacitly acknowledges that the *client—and not the VTA*—may be “involved in ‘identify[ing] bandwidth-limited conditions of an internet protocol network between the video router and a plurality of video receivers’ by signaling information related to its needs to the VTA Router in the form of feedback.” (Pet. at 31–32.) But Petitioner does not describe what “bandwidth-limited conditions” are “identified” by this process or how they are “identified.”

Prelim. Resp. 30.

We agree with Patent Owner on this record that none of the cited portions of Shao-028 teach or suggest that the downstream control requests include identified bandwidth-limited conditions.⁵ See Ex. 1005, 3:4–10, 8:57–60, 8:66–9:2, 10:13–15, 10:26–28, Fig. 6. Rather, Shao-028 indicates that control requests relay the user’s selections of media objects. See *id.* at 9:58–62.

Figure 6 of Shao-028, an annotated version of which is reproduced above, “is a block diagram illustratively depicting how a plurality of VTAs can be used to control the flow of packetized data between server device 12 and a plurality of clients.” Ex. 1005, 9:54–57. Figure 6 indicates bi-directional control information sent back and forth between the VTAs and the client devices by showing a double arrowed line next to the word

⁵ In view of our agreement with Patent Owner that, on this record, the cited portions of Shao-028 fail to teach or suggest that the control requests from the client to the VTA include identified bandwidth-limited conditions about the link between them, we need not address the claim construction issues related to “identifying bandwidth-limited conditions” presented by the parties.

“Control” between them. *See, e.g., id.* at Fig. 6 (showing “Control” requests moving bi-directionally between VTA 84c and client device 13a). “In this example, the various nodes have bi-directional feedback/control communication capabilities through which client device software is configured to relay user inputs with respect to selected media objects and/or other related interactive features.” *Id.* at 9:58–62. “Thus, for example, a user may select a specific video object within a scene through a graphical user interface. This selection will be sent upstream to one or more VTA’s and possibly to the server device 12 itself, if needed, to elicit the proper response in the packetized data that is sent downstream.” *Id.* at 9:64–67.

In this manner, the VTAs are able to respond dynamically to the needs of the client devices. As mentioned above the VTAs may also respond to network related constraints. Thus, both network and user interactivity behaviors are taken into consideration.

The user can interact with a video player application program running on a client device, for example, and the service device through several ways such as mouse click These interaction behaviors can influence the amount of network bandwidth allocated to individual object[s] dynamically.

Accordingly, the control paths provide a mechanism for networking or otherwise establishing what object data 14 needs to be transmitted and how best to allocate limited bit rate among multiple video objects according to network state and users’ interaction.

Id. at 10:1–17.

This discussion above in Shao-028 about the control mechanism indicates that the control signals received by the VTAs from the client contain information about the video object selections made by the client, rather than information about bandwidth-limited conditions as Petitioner

asserts. Moreover, the reference to “network related constraints” that were “mentioned above” appears to refer back to the discussion about QoS which, as discussed above, does not specifically teach that the VTA measures bandwidth-limited conditions on the link between itself and a client device. Ex. 1005, 10:2–3.

Regarding the statement “VTAs will filter out data packets from upstream according to downstream requirements (e.g., according to the network link and a particular client[']s capabilities),” we are similarly unpersuaded that the reference to “network link” indicates any additional information is sent in the control messages from the client device to the VTA, much less bandwidth-limited information that was previously identified. Ex. 1005, 10:26–28. The reference is vague, does not specifically say it relates to bandwidth, and could indicate the “link” between “the VTA and its next upstream VTA” as discussed later in the specification of Shao-028, or it could just be read in conjunction with the remaining part of that sentence, “a particular client'[s] capabilities,” to indicate that each link goes to a different client. *Id.* at 13:38–42.

Accordingly, on this record, Petitioner has not demonstrated a reasonable likelihood that Shao-028 teaches or suggests “identify[ing] bandwidth-limited conditions of an internet protocol network between the video router and a [plurality/set] of video receivers.” As such, Petitioner has not demonstrated a reasonable likelihood that Shao-028 would have rendered independent claims 1, 6 or 11 obvious. As to dependent claims 2, 3, 5, 7, 8, 10, 12, 13 and 15, Petitioner makes no further allegations that would remedy the deficiency discussed above in regards to the independent claims. *See* Pet. 51–56. As such, Petitioner has not shown a reasonable

likelihood that any of claims 1–3, 5–8, 10–13 and 15 would have been obvious over the asserted art in Ground 1.

Petitioner in Ground 2 asserts alternative arguments for why independent claims 1, 6 and 11 would have been obvious in view of Shao-023 and an additional reference Shao-423. Pet. 56–70. Because Ground 2 relies on the same argument for why Shao-023 teaches or suggests the limitation “identify[ing] bandwidth-limited conditions of an internet protocol network between the video router and a [plurality/set] of video receivers,” *see* Pet. 56, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing on Ground 2 for the same reasons discussed above for Ground 1.

III. DISCRETIONARY DENIAL UNDER 35 U.S.C. § 314(a)

Patent Owner argues the Board should exercise its discretion under 35 U.S.C. § 314(a) and deny institution in light of the parallel litigation involving the ’372 patent. Prelim. Resp. 57–65; *see Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020) (precedential). As our determinations above lead us to deny institution on the merits of Petitioner’s challenges, we need not address the *Fintiv* factors or decide whether to exercise our discretion under 35 U.S.C. § 314(a).

IV. CONCLUSION

For the reasons set forth above, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to at least one challenged claim of the ’372 patent.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner's request for an *inter partes* review of claims 1–3, 5–8, 10–13 and 15 of the '372 patent is *denied*.

IPR2024-01371
Patent 11,019,372 B2

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