

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner

v.

VIDEO SOLUTIONS PTE. LTD.,
Patent Owner.

IPR2024-00194
U.S. Patent No. 9,204,099

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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PETITIONER'S EXHIBIT LIST

Ex.1001	U.S. 9,204,099
Ex.1002	Prosecution History of U.S. 9,204,099
Ex.1003	Declaration of Narasimha Reddy, Ph.D. under 37 C.F.R. §1.68
Ex.1004	<i>Curriculum Vitae</i> of Narasimha Reddy, Ph.D.
Ex.1005	U.S. Pub. 2010/0287238
Ex.1006	U.S. 8,581,958
Ex.1007	U.S. Pub. 2005/0080894
Ex.1008	U.S. 7,692,683
Ex.1009	U.S. Pub. 2009/0232129
Ex.1010	U.S. 8,601,097
Ex.1011	U.S. 9,124,757
Ex.1012	Andrew S. Tanenbaum, "Computer Networks," 4th ed. (2002)
Ex.1013	U.S. 9,009,225
Ex.1014	U.S. 7,877,489
Ex.1015	Michael Arrington, "Facebook Will Launch In-Browser Video Chat Next Week In Partnership with Skype," TechCrunch (Jul. 1, 2011).
Ex.1016	Ian Paul, "Facebook Video Calling vs. Google+ Hangouts," PCWorld (July 7, 2011).
Ex.1017	U.S. Pub. 2006/0215765
Ex.1018	U.S. Pub. 2009/0015661
Ex.1019	U.S. Pub. 2010/0157017
Ex.1020	U.S. Pub. 2010/0333004

Ex.1021	Complaint, Video Solutions Pte. Ltd. v. Cisco Systems, Inc., 2-23-cv-00222 (E.D. Tex.)
Ex.1022	Docket Control Order, Video Solutions Pte. Ltd. v. Cisco Systems, Inc., 2-23-cv-00222 (E.D. Tex.)
Ex.1023	Calendar Events Set for 2/10/2025 - 2/11/2025, Judge Rodney Gilstrap
Ex.1024	Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022)
Ex.1025	United States Copyright Office Catalog Record for Andrew S. Tanenbaum, <i>Computer Networks</i> , 4th ed. (Ex.1012)
Ex.1026	(NEW) Supplemental Declaration of Narasimha Reddy, Ph.D
Ex.1027	(NEW) Deposition Transcript of Dr. Jacob Sharony, September 6, 2024
Ex.1028	(NEW) Preliminary Claim Constructions, Video Solutions Pte. Ltd. v. Cisco Systems, Inc., 2-23-cv-00222 (E.D. Tex.)
Ex.1029	(NEW) William Strunk and E.B. White, <i>The Elements of Style</i> (4th ed. 2000)
Ex.1030	(NEW) Bryan A. Garner, <i>The Redbook: A Manual of Legal Style</i> (2d ed. 2006)
Ex.1031	(NEW) Anne Enquist and Laurel Currie Oates, <i>Just Writing</i> (4th ed. 2013)
Ex.1032	(NEW) THE CHICAGO MANUAL OF STYLE (18th ed. 2024)
Ex.1033	(NEW) Andrew S. Tanenbaum, "Computer Networks," 4th ed. (2002), pp. 529-532, 683-692 ("Tanenbaum II")
Ex.1034	(NEW) Request for Comments (RFC) 3550 – RTP: A Transport Protocol for Real-Time Applications, July 2003
Ex.1035	(NEW) RFC 4123 – Session Initiation Protocol (SIP) – H.323 Interworking Requirements, July 2005
Ex.1036	(NEW) RFC 3261 – SIP: Session Initiation Protocol, June 2002
Ex.1037	(NEW) RFC 2026 – Internet Engineering Task Force Request for Comments 2026, October 1996

Ex.1038	(NEW) U.S. Pub. 2007/0097886
Ex.1039	(NEW) U.S. 8,526,447
Ex.1040	(NEW) Errata Sheet for Deposition Transcript of Jacob Sharony

I. INTRODUCTION

The Petition shows that claims 3-6 and 10 (the “Challenged Claims”) of the ’099 patent are unpatentable. Patent Owner’s Response (“POR”) proposes claim constructions for two phrases: “*the conference participants*” and the “*control connection*.” POR, 30, 31, 39. Patent Owner’s claim construction arguments fail because they confuse what “could be” within the claims’ scope with what the claim requires. Patent Owner’s arguments on the substance of the asserted combinations fail for at least two reasons. First, these arguments rely on Patent Owner’s proposed constructions and, second, the arguments rely on mischaracterizations of the cited references.

The POR therefore fails to overcome the Petition’s evidence and arguments. The Board should find the Challenged Claims unpatentable.

II. ADDITIONAL PRIOR ART CITED

Petitioner cites to additional evidence demonstrating the background knowledge of a POSITA and providing contemporaneous context to support Petitioner’s assertions regarding what a POSITA would have understood from the prior art in the grounds. To the extent necessary, these background references qualify as prior art. For example, IETF Request for Comments documents, such as RFC 3261, RFC 3550, and RFC 4123, are prior art printed publications. *See, e.g.*, Ex.1037, 1, (“RFCs can be obtained from a number of Internet hosts...”), 8 (IETF

documents are “readily available to a wide audience”), 26 (IETF participants “shall publicly announce...every activity” relating to the standardization process). The Board has repeatedly found IETF documents, including RFCs, to be “printed publications.” *See, e.g., Apple, Inc. v. VirnetX, Inc.*, IPR2017-00337, Paper 31, 46-47 (May 30, 2018) (RFCs are “precisely the type of documents whose main purpose is for public disclosure”); *Riot Games, Inc. v. Paltalk Holdings, Inc.*, IPR2018-00130, Paper 11, 30-33 (May 15, 2018) (RFCs are printed publications). Numerous citations to these RFC documents in prior art patents and patent publications confirm that they were known to and accessed by those of skill in the art. *See, e.g.,* Ex.1038, [0010], [0099]; Ex.1039, 1:16-18.

III. CLAIM CONSTRUCTION

A. “*conference participants*” ([3.1.2] and [10.0])

Patent Owner argues that at least one “*conference participant*[/]” must be located at “*the non-mesh connected endpoint.*” POR, 30, 31. This is so, Patent Owner argues, because the claim “encompasses” a conference participant at a non-mesh-connected endpoint. *See* POR, 32, 33, 37. This argument confuses what the claim might “encompass” with what the claim requires. “To permit is not to require.” *Fed. Mogul Corp. v. U.S.*, 63 F.3d 1572, 1578 (Fed. Cir. 1995); *see also Sisvel Int’l S.A. v. Sierra Wireless, Inc.*, 81 F.4th 1231, 1237 (Fed. Cir. 2023) (“This language of the specification clearly is permissive, not mandatory.” (cleaned up)).

Even if a conference participant *could be* located at a non-mesh connected endpoint, that does not justify requiring one at a non-mesh connected endpoint, as Patent Owner argues. The Federal Circuit routinely rejects such arguments, often due to reading a limitation from the specification into the claims. *See, e.g., Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 904 (Fed. Cir. 2004) (rejecting arguments that a claimed “opening” implicitly required a pressure jacket, where none of the asserted claims recited a “pressure jacket” limitation); *Medichem, S.A. v. Rolabo, S.L.*, 353 F.3d 928, 934 (Fed. Cir. 2003) (noting certain claims “permit, but do not require, a tertiary amine.”).

Dr. Sharony's Deposition testimony illuminates the fundamental flaw in Patent Owner's claim construction arguments. Counsel for Petitioner asked Dr. Sharony about whether the claim requires a non-mesh connected endpoint to provide a video feed. Ex.1027, 12:20-23, 14:22-25. Dr. Sharony agreed that the claim language does not require this, but insisted that “it *could*”:

Q. Okay. My question is the claim doesn't say that the proxy receives video feeds from non-mesh connected endpoints for the mesh connected endpoints?

A: But **it could be**.

Q. Could be. But the claim doesn't say it. Right?

A. The claim doesn't say that. Yeah. But it -- yeah, **it could be**.

* * *

Q. Okay. The claim doesn't say that the server serves reduced-sized video feeds from the non-mesh connected endpoints to the mesh connected conference participants. Right?

A. But as we said, **could be**. It's just that's what is claimed.
But it could be.

Ex.1027, 16:25-17:8, 18:25-19:5 (emphasis added).

Simply put, "it could be" is not a justification for reading an unrecited limitation into a claim. Patent Owner's ill-considered logic would have the claim require something merely because the claim permits it. *See Fed. Mogul Corp.*, 63 F.3d at 1578.

Patent Owner's central argument is that the claim's use of both "*the conference participants*" and "*the mesh-connected conference participants*" requires "that 'the conference participants' is broader and encompasses participants at both mesh and non-mesh connected endpoints." POR, 33.

Patent Owner's argument rests on a logical fallacy. There is no dispute that "*the mesh-connected conference participants*" refers only to conference participants located at mesh-connected endpoints. It does not follow that "*the conference participants*" must include non-mesh connected participants.

The fallacy of Patent Owner's argument is laid bare by applying the same logic to other limitations, such as the "*virtual table*" limitation recited in claim 7.

Claim 8, which depends from claim 7, further recites that “*the virtual table is a round table.*” Thus, the term “*virtual table*” in claim 7 is understood to be broader than—to encompass more than—a “*round table.*” *See* 35 U.S.C. § 112(d) (requiring that “a claim in dependent form shall... specify a further limitation of the subject matter claimed”). By Patent Owner’s logic, however, because the term “*virtual table*” is broader than “*round table,*” the “*virtual table*” of claim 7 must not be round (or at least must be something more than round). Such an interpretation is plainly erroneous, as it “reads in a negative limitation that is at odds with the claim language.” *Kamstrup A/S v. Axioma Metering UAB*, 43 F.4th 1374, 1383 (Fed. Cir. 2022).

Returning to claim 3, the claim language confirms that there is no requirement for a conference participant to be located at a non-mesh connected endpoint. Claim 3 uses the term “**user**”—not “*conference participant[]*”—to refer to an individual “*located at the non-mesh connected endpoint.*” The use of different terms for the claim’s human components creates “a presumption that those components are distinct.” *Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1382 (Fed. Cir. 2022). Patent Owner largely ignores the recitation of a “*user located at the non-mesh connected endpoint*” and offers no rationale for interpreting the claimed “**user**” as being mandatorily included in the separately recited group of “*conference participants.*” Ex.1026, 8-10.

The distinction between the claimed “*user located at the non-mesh connected endpoint*” and the “*conference participants*” is further supported by the '099 patent specification, quoted by Patent Owner:

The use of a filmstrip is a feature of the user interface of a video conferencing endpoint in accordance with embodiments of the invention. The filmstrip consists of a frame strip containing reduced size video feeds from **the various participants**. Its purpose is to allow **users** to see video and collaboration material **from all conferenced parties** and to determine which particular video streams or collaboration materials will be “promoted”, that is to say displayed at a larger scale, and how promotions will be initially placed on the screen(s) of the endpoint.

Ex.1001, 4:61-5:3; (emphasis added); POR, 35, 36.

This disclosure refers to individuals supplying video feeds as “participants,” or “conferenced parties,” and to the individuals viewing video feeds as “users.” Ex.1001, 4:61-5:3. A POSITA would have understood this description to inform the claims’ use of “*a user*”—instead of “*conference participant[]*”—as a deliberate drafting choice. Ex.1026, 11-12. Patent Owner’s other citations to the '099 patent merely relate to capabilities of a non-mesh connected endpoint. POR, 36; Ex.1001, 4:5-11, 5:14-17. None of these citations suggest that the claimed “*user*” **must** be a “*conference participant[]*.”

Indeed, Dr. Sharony agreed in deposition that the claimed “user” is not synonymous with the claimed “conference participant.” He explained that a “conference participant” must send content, while a “user” may “access or send or receive video through [an] endpoint.” Ex.1027, 26:7-10, 31:21-23, 32:4-5.

Patent Owner’s final argument is that the claim refers to *mesh-connected conference participants* because “there is no reason to provide the non-mesh connected endpoint with the video stream of its own associated conference participant.” POR, 33. This argument starts from the incorrect premise that a conference participant does not see their own video feed. The ’099 specification contemplates exactly the opposite. *See* Ex.1001, 7:4-9 (when “a participant at location A” makes a presentation, “all endpoints add[] a thumbnail to the filmstrip..., including endpoint A”).

Patent Owner also ignores that the claim allows for more than one non-mesh connected endpoint—yet the claim has no requirement that any conference participants located at non-mesh connected endpoints can see one another. Ex.1001, 18:26-28 (“*a plurality of endpoints*” where “*at least one of [the endpoints] is connected in a non-mesh configuration*”). For that matter, claim 3 does not require non-mesh connected endpoints to provide video feeds at all—a point that is consistent with the claim’s recitation of a “user located at the non-mesh connected endpoint.”

Unsurprisingly, Patent Owner's proposed construction has already been rejected twice. First, this Board noted at institution that nothing in the claim "requires any of 'the conference participants' to be associated with the non-mesh connected endpoint." Paper 7, 16. Second, the district court in co-pending litigation construed "*conference participants*" as "individuals participating in a video conference from an endpoint." Ex.1028, 2. None of Patent Owner's arguments undermine that construction. To the extent the Board finds that a formal construction is necessary, the Board should adopt the district court's construction: "individuals participating in a video conference from an endpoint."

Adopting the district court's construction, if needed, would be appropriate for at least two reasons. First, the claim language consistently delineates between the "*endpoints*" and the "*conference participants*" at those endpoints. For instance, claim 3 recites:

*frames containing reduced-size video feeds from **the conference participants** is displayed **at the mesh endpoints**...*

*frames containing reduced-size video feeds from the mesh-connected **conference participants** to the non mesh connected endpoint....*

Similarly, claim 3 refers to a "*a **user located at the non-mesh connected endpoint.***" Thus, the claim consistently distinguishes the "*endpoints*" from the individuals (i.e., "*conference participants*" and "*user[s]*") located at those

endpoints. In fact, Dr. Sharony agreed that the a “conference participant” is a “human,” while an endpoint is “a device or collection of devices.” Ex.1027, 19:15-18. A POSITA would have understood that the “*conference participants*” are the individuals participating in a videoconference from an endpoint, and not endpoints that are connected to the videoconference. Ex.1026, 8-12.

Second, for the reasons explained above, nothing in the claim language requires any of “*the conference participants*” to be specifically located at a non-mesh connected endpoint.

B. “control connection”/ “proxy controller” ([3.4] and [10.3])

Patent Owner argues that the “*transfer of the full size video feed to the non-mesh connected endpoint*” must be initiated in response to the user “*select[ing] a video feed for promotion to full size.*” POR, 39. This construction, if adopted, would add a limitation requiring the “*select*” step to cause the “*initiate transfer*” step. Patent Owner fails to justify reading a causal-connection limitation into the claims.

Patent Owner’s principal argument is that the absence of a comma between the “*select*” and “*initiate*” actions means that they are “causally connected.” POR, 39, 40. Patent Owner relies on no rule of claim construction (or English grammar). To the contrary, the structure of [3.4] shows that the “*to select*” and the “*to initiate*” actions are grammatically parallel:

— *a control connection permitting a user located
at the non-mesh connected endpoint*
→ ***to select** a video feed on the film strip for
promotion to full size*
and
→ ***to initiate** transfer of the full size video
feed to the non-mesh connected
endpoint.*

In other words, limitation [3.4] simply recites that the “*control connection*” permits a user to perform two actions: “***to select** a video feed...**and to initiate** transfer,” with no requirement that one action occur in response to the other. *See* Institution Decision, 34 (“[Limitation 3.4] does not state, for example, permitting a user to select a video feed *and in response* initiating transfer of the full-size video.”). This limitation is an ordinary list of two items conjoined with the word “*and*.” The absence of a comma between these two items is due to English grammar—not to some tacit signal of causality. Simply put, a comma does not belong in a list of two items joined by “*and*.” *See* Ex.1032, 386 (“In a series whose elements are all joined by conjunctions, no commas are needed...”); Ex.1029, 2 (“In a series of **three or more** terms with a single conjunction, use a comma after each term except the last.”); Ex.1030, 3-4 (serial commas in lists of three or more items); Ex.1031, 228 (describing “serial comma” rule: “A series is **three or more***

items that are grouped together and that are **in the same grammatical form.**”).

Patent Owner identifies no contrary grammatical authority. Patent Owner also points to no other language in the claim to support its “causally connected” construction. Thus, consideration of the claim language alone is sufficient to reject Patent Owner’s proposed construction. “The claim construction inquiry begins and ends in all cases with the actual words of the claim.” *Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1375 (Fed. Cir. 2017) (cleaned up).

Turning to the specification, Patent Owner argues that the description of minimizing bandwidth usage by transmitting the full-size video feeds means that the “*select*” and “*initiate*” actions should be causally connected. POR, 40, 41. Without this causality, Patent Owner argues, the non-mesh connected endpoints would receive all the full-sized video feeds, unnecessarily consuming additional bandwidth. POR, 41. But the claim does not require a reduction in bandwidth consumption. And Dr. Sharony agreed that nothing in the claim would prevent “the non-mesh connected endpoint from receiving more than one full-size video.” Ex.1027, 45:20-25.

Patent Owner asserts that the Petition and Dr. Reddy’s Declaration “appear to agree with” Patent Owner’s construction. POR, 41 (citing Ex.1003, 126, 139, 260, 272). Patent Owner mistakes Dr. Reddy’s analysis of how the prior art would perform the claim language for a statement of what the claim itself requires.

Neither Dr. Reddy's Declaration nor the Petition suggests that the transfer of the full-size video feed must be initiated by the "*selection of a video feed for promotion to full size.*"

In summary, Patent Owner fails to justify construing limitations [3.4] and [10.3] in a way that differs from their plain meaning. If the Board determines that a construction is necessary, the Board should construe the limitations such that the "*initiate transfer*" step does not need to be performed automatically in response to the "*select*" step.

IV. MERITS

A. Ground I – Setton and Baker

1. Limitations [3.1.2] and [10.0]

Patent Owner's arguments on the merits of limitations [3.1.2] and [10.0] are entirely contingent on the Board adopting its construction of "*conference participants.*" POR, 45. Since that construction is erroneous and unwarranted, Patent Owner's arguments regarding these limitations are similarly without merit, and the Petition's analysis is unrebutted.

Patent Owner's arguments for limitations [3.1.2] and [10.0] also lack merit for reasons independent of its claim construction. Patent Owner argues that limitations [3.1.2] and [10.0] "must include video feeds from participants at the mesh-connected endpoints and the at least one non-mesh connected endpoint."

POR, 46. This argument attempts to add an additional requirement that every endpoint must provide a video feed.

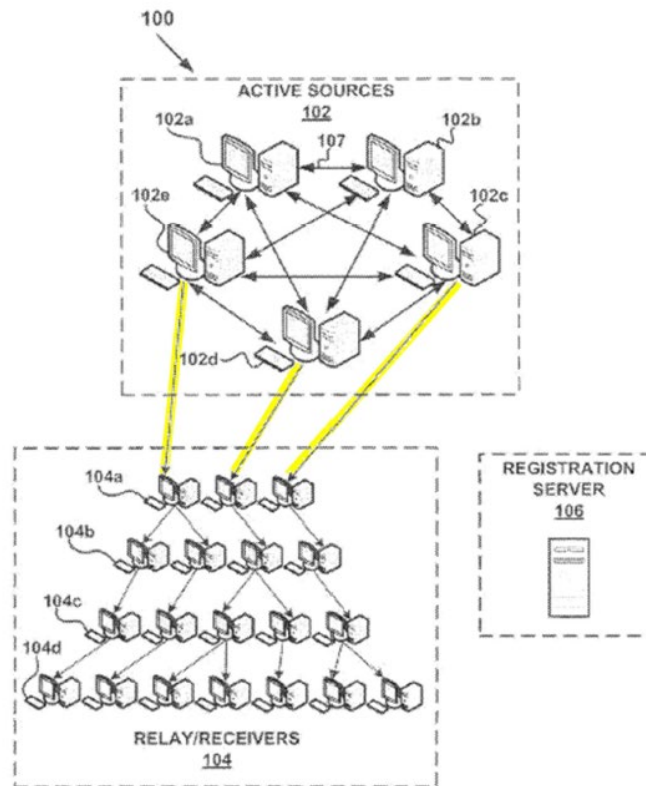
Nothing in the claim requires each one of the “*endpoints*” (irrespective of its connection type) to provide a video feed. As Dr. Sharony agreed, the claim only recites that the “*proxy*,” which is “*at the selected mesh-connected endpoint*,” receives “*video feeds from the mesh-connected endpoints*.” Ex.1027, 12:20-13:3 (agreeing that “[t]he claim doesn’t say” that the “proxy receives video feeds from non-mesh connected endpoints for the mesh connected endpoints.”). Likewise, the claim only recites that the “*server*” serves “*frames containing reduced-size video feeds from the mesh-connected endpoints*.” POR, 33; Ex.1027, 14:22-15:2. In other words, the claim makes no reference to any video feed that originates at *the non-mesh connected endpoint(s)*. Patent Owner’s attempt to inject such a feature into the claim—and to require that the unrecited video feed from a *non-mesh connected endpoint* be incorporated into the *film strip*—is simply wrong.

Patent Owner also argues that the Petition does not establish unpatentability of limitation [10.0] because it is not identical in wording to limitation [3.1.2]. POR, 53. Patent Owner does not identify any substantive difference in [10.0] that is not addressed by the arguments for limitation [3.1.2], and its argument must fail.

2. Limitations [3.4] and [10.3]

Patent Owner's arguments for Limitations [3.4] and [10.3] are similarly contingent on the Board adopting its construction of "*control connection*" and "*proxy controller*." POR, 54, 55. Rejecting those claim construction arguments for the reasons explained above will similarly dispose of Patent Owner's arguments on the merits of [3.4] and [10.3] in their entirety.

Patent Owner's arguments about these limitations also mischaracterize the asserted prior art. Based on the arrows in Setton's Fig. 1, Patent Owner argues that Setton only contemplates "unidirectional, multicast communications to the relay/receivers." POR, 56; *see also* 12, 13, 47, 48. Thus, Patent Owner argues, Setton's relay/receivers would not be able to *provide* information to initiate transfer of a full-sized video feed. POR, 56.



Ex.1005, Fig. 1 (annotated); POR, 13.

Patent Owner's conclusion that Setton's relay/receivers "do not provide information" is unfounded. POR, 56. Setton's Fig. 1 is depicting a multicast of media streams, not communication in general. *See* Ex.1005, [0023], [0025]; Ex.1026, 13. Dr. Sharony acknowledged that in multicast protocols, control information may flow "upstream," while the media content flows "downstream," *i.e.*, communications are bi-directional. Ex.1027, 55:12-16. Patent Owner does not identify any disclosure in Setton that even suggests that Setton's multicast does not include any bi-directional control signaling, or that Setton's multicast is like a uni-

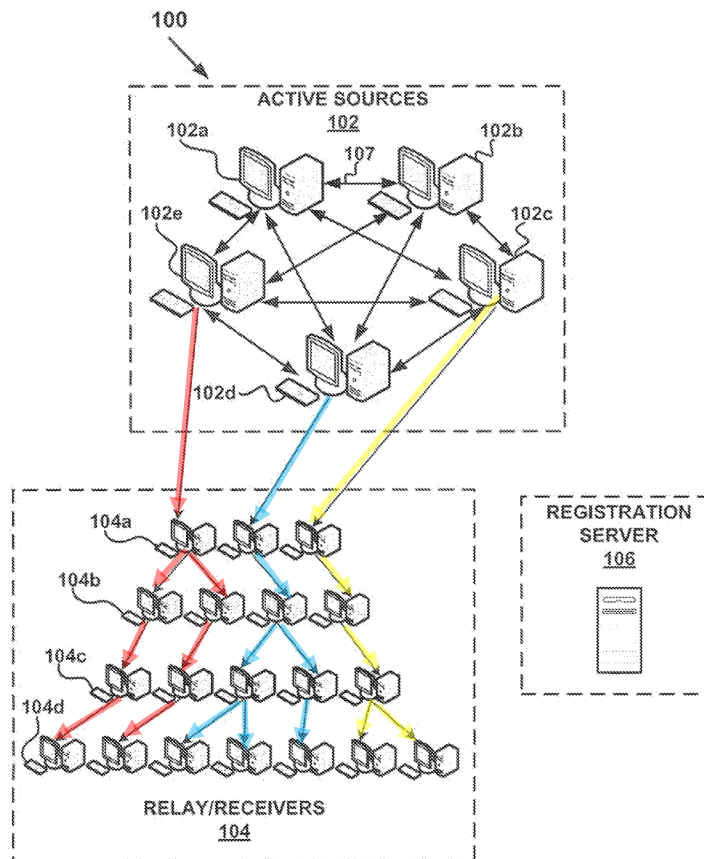
directional broadcast. A POSITA would have understood that it would be highly unusual for any communication protocol—including Setton's "tree-based video multicast protocol"—to ***exclude*** bi-directional exchange of signaling information. Ex.1026, 14-17; Ex.1033, 529-532, 683-692 (describing SIP, RTP, and H.323 protocols); Ex.1009, [0040], [0129]; Ex.1018, [0033]; Ex.1034, 17, 18, 29 (RTP, RTCP control signaling); Ex.1035, 9, 10 (H.323 control signaling); Ex.1036, 9-12 (SIP control signaling).

Further, Setton explicitly describes bi-directional control communications that establish and control what media the relay/receiver receives. For instance, Setton explains that a relay/receiver can request to "join[] the discussion" in a videoconference and be promoted to an active source peer. Ex.1005, [0026]. Dr. Sharony agreed that this promotion to an active source would include sending "control data" to an active source. Ex.1027, 75:14-18. This would involve bi-directional communication. Setton's multicast protocols are consistent with a relay/receiver providing similar control data to an active source to initiate transfer of a full-sized video feed.

Patent Owner's assertion that Setton's relay/receivers must all "receive the same aggregated media stream" is also unfounded. POR, 56. Patent Owner quotes parts of Setton describing the distribution of an aggregated media stream from the active sources to the relay/receivers. POR, 56. But these quotes all describe non-

limiting embodiments. POR, 56; Ex.1005, [0014] (“In **embodiments** in accordance with the present invention...”), [0030] (“**embodiments** in accordance with the present invention...”); [0024] (same); [0013] (Setton’s embodiments are “not intended to limit the invention” and “are intended to cover alternatives, modifications, and equivalents.”). Their disclosure is not dispositive.

Patent Owner also ignores other teachings in Setton. For instance, Setton describes an embodiment in which “more than one active source is used to drive the multicast,” and that those active sources “are not required to have an exact replica of the content (e.g., a media stream).” Ex.1005, [0025]. This embodiment is illustrated by annotated Fig. 1, below, which shows how different subsets of the relay/receivers would receive different media streams (red, blue, and yellow) from different active sources:



Ex.1005, Fig. 1 (annotated).

Referring to this embodiment, Setton explains that when multiple active sources drive the media streams, the streams may be “transmitted...in a different order.” Ex.1005, [0025]. Setton’s system is not limited to a single identical media stream being distributed to every relay/receiver.

In summary, Patent Owner’s arguments fail to show that the combination of Setton and Baker is inconsistent with Setton’s disclosure, or that Setton teaches away from the combination. Rather, a POSITA would have been motivated to use

Baker's filmstrip interface in Setton's network for the same reasons explained in the Petition. Pet., 16-19, 26, 27.

B. Ground III

1. Limitations [3.1.1] and [10.0]

A POSITA would have found it obvious to modify Apostolopoulos to combine the functionality of a collaborator node (“*endpoint*”) and the central server. Pet., 57, 58. Incorporating central server functionality into an endpoint was well-known in the art. Pet., 57. A POSITA would have appreciated that combining central server and collaborator capabilities at one of Apostolopoulos's nodes would provide additional options for collaboration and network configuration. Pet., 57, 58; Ex.1026, 18,19.

Patent Owner argues that allowing a collaborator node to provide central server functionalities would frustrate Apostolopoulos's goal of allowing dynamically changing network topologies. POR, 63, 64. This is because, Patent Owner alleges, the modification would limit the conference endpoints to only those devices with sufficient processing hardware and power to function as a central server. POR, 63.

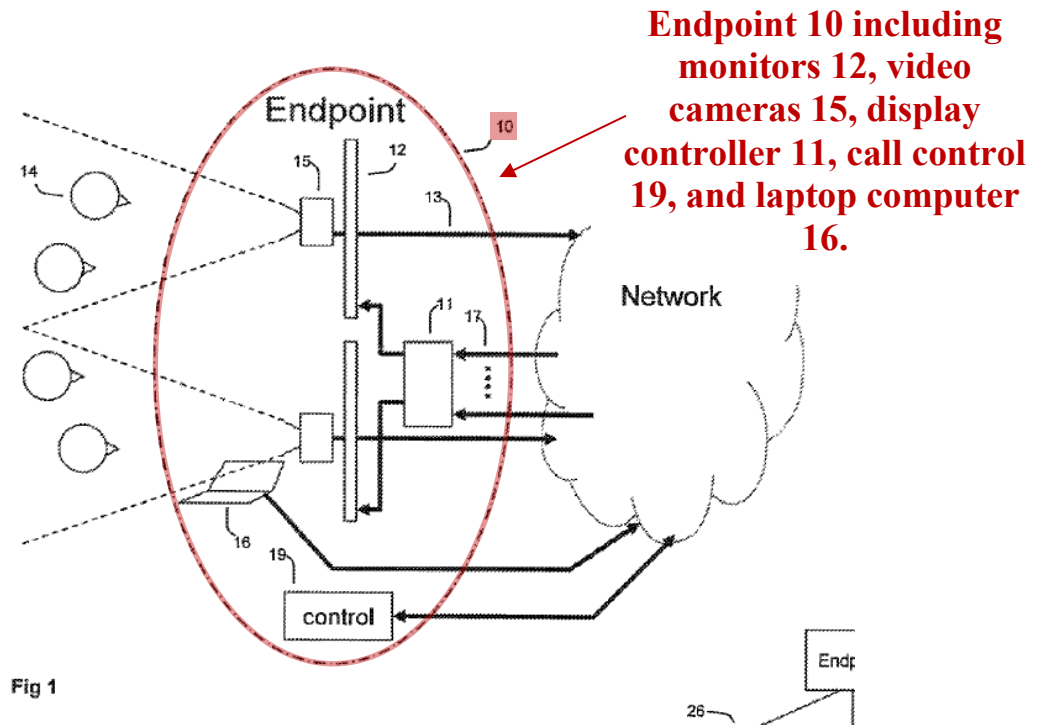
Patent Owner's argument rests on the mistaken foundation of incorporating central server capabilities at every node. POR, 63. Nothing in the Petition, the '099 patent, or Apostolopoulos requires such broad incorporation. The Petition does not

argue that every node would have central server capabilities, nor do the claims of the '099 patent require this. The claims recite only one “*proxy*,” and one “*server*.” And nothing in Apostolopoulos would discourage one node, or a subset of nodes, to have the combined functionality of a collaborator node and a central server. Ex.1003, 219-222. Apostolopoulos does not require that every collaborator node have the same capabilities. Nor does Apostolopoulos require that every node can be reconfigured into every possible combination of mesh and star-based topologies.

The modification of Apostolopoulos proposed in the Petition combines the functionalities of a collaborator node and a central server. Pet., 57, 58. The modification would include one such collaborator node, or multiple collaborator nodes, having central server capability. Pet., 57, 58. In either case, the modification would not make Apostolopoulos's network any less dynamic or flexible, as Patent Owner suggests. POR, 63, 64. Rather, the modification would provide the option of having a collaborator join a conference at the central node. Ex.1026, 19. Additionally, if more than one collaborator node is capable of acting as a central server to communicate with the star nodes, then allowing one of a few mesh-connected collaborator nodes to be “*selected*” as the central server only increases the flexibility of the system. Ex.1026, 18, 19. This would be true even though some collaborator nodes do not have central server capabilities.

The Petition demonstrates that providing “*server*” and “*proxy*” functionality at an endpoint was well-known in the art. Pet., 57. For instance, Baker discloses a “centralized computing device 302” that “receives the video and audio streams from each of the participants and includes a server-side video conferencing application that processes each of the video and audio streams supplied by the participants.” Ex.1006, 3:58-4:4; Pet., 57. Baker discloses that this centralized computing device “can be operated **by one of the remote participants.**” Ex.1006, 3:58-4:4; Pet., 57. Further, Kenoyer explains that a Multipoint Control Unit (MCU) “may be **embedded in** one of the video conferencing endpoints” for transmitting and receiving data streams from “video conferencing endpoints.” Ex.1008, 3:55-65; Pet., 57.

Patent Owner argues that Baker’s computing device does not support the combination because the device is not physically incorporated within an endpoint. POR, 65. But the claims merely recite that the proxy is “***at the selected-mesh connected endpoint***”—not physically incorporated within the endpoint. Consistent with Fig. 1 of the ’099 patent, it’s sufficient for Apostolopoulos’s central server functionality to be incorporated at an endpoint. Ex.1027, 9:5-8 (agreeing that “an endpoint can comprise a collection of devices.”).



Ex.1001, Fig. 1 (annotated).

Patent Owner also argues that Kenoyer's MCU "can be accomplished with only software and does not require additional processing hardware or power like Apostolopoulos's central server." POR, 67. Patent Owner does not explain what this "additional processing hardware or power" must include. Apostolopoulos does not establish any baseline performance requirements for the central server. For instance, Apostolopoulos describes embodiments in which the central server has reduced "complexity requirements." Ex.1007, [0065]. Nothing in Apostolopoulos would discourage combining central server functionalities with a collaborator node.

Patent Owner argues that a POSITA would not have combined Baker's filmstrip interface with Apostolopoulos's network because Apostolopoulos describes using the network for a 3D virtual environment, while Baker describes a 2D virtual environment. POR, 73. This argument lacks merit. Apostolopoulos is broadly directed to supporting communications in a communicative environment, including "reducing both computational complexity and communication bandwidth traffic." Ex.1007, [0019]. Patent Owner has not identified any disclosure in Apostolopoulos that limits the use of its networks to 3D virtual environments. A POSITA would have appreciated that Apostolopoulos's networks would have been suitable for use in a variety of collaborative environments, including as Baker's. Ex.1026, 20.

V. CONCLUSION

The Board should find the Challenged Claims unpatentable.

Respectfully submitted,

Dated: October 11, 2024
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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this Reply, that the number of words in this paper is 4,231. Pursuant to 37 C.F.R. § 42.24(d), this word count excludes the table of contents, table of authorities, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: October 11, 2024

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CERTIFICATE OF SERVICE

The undersigned certifies that, in accordance with 37 C.F.R. § 42.6(e) service was made on Patent Owner as detailed below.

Date of service October 11, 2024

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Documents served **Petitioner's Reply to Patent Owner's Response; Petitioner's Exhibit List; and Exhibits Ex.1026 – Ex.1040.**

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