

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZOHO CORPORATION and ZOHO CORPORATION PVT., LTD.,
Petitioner,

v.

MEETRIX IP, LLC,
Patent Owner.

IPR2023-00379
Patent 9,094,525 B2

Before BRIAN J. McNAMARA, CHARLES J. BOUDREAU, and
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

SZPONDOWSKI, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We instituted an *inter partes* review of claims 9–20 of U.S. Patent No. 9,094,525 B2 (Ex. 1001, “the ’525 patent”), in response to a Petition (Paper 1, “Pet.”) filed by Zoho Corporation and Zoho Corporation Pvt., Ltd. (collectively, “Petitioner”). Paper 6 (“Dec.”). During the trial, Meetrix IP, LLC (“Patent Owner”) filed a Response to the Petition (Paper 10, “PO Resp.”), Petitioner filed a Reply (Paper 13, “Reply”), and Patent Owner filed a Sur-reply (Paper 15, “Sur-reply”).

An oral hearing was held on April 25, 2024, and a copy of the transcript was entered into the record. Paper 25 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6 (2018). This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the complete record, Petitioner has shown, by a preponderance of the evidence, that claims 9–16 of the ’525 patent are unpatentable. Petitioner has *not* shown by a preponderance of the evidence that claims 17–20 are unpatentable.

II. BACKGROUND

A. *Real Parties in Interest*

The parties identify themselves as the real parties in interest. Pet. 2; Paper 3, 2 (Mandatory Notices of Patent Owner).

B. *Related Matters*

Petitioner and Patent Owner identify *Meetrix IP, LLC v. Zoho Corp.*, 6:21-cv-01288 (W.D. Tex.) and *Meetrix IP, LLC v. Verizon Commc’ns, Inc.*, 6:21-cv-01289 (W.D. Tex.) as related cases. Pet. 3; Paper 3, 2.

Petitioner concurrently filed IPR2022-00378, challenging claims 1–8 of the ’525 patent. Patent Owner also identifies the following *inter partes*

reviews as involving related patents challenged by Petitioner: IPR2023-00371, IPR2023-00377, IPR2023-00378, IPR2023-00380, and IPR2023-00382. Paper 3, 2.

C. The '525 Patent (Ex. 1001)

The '525 patent is titled “Audio-Video Multi-Participant Conference Systems Using PSTN [(public switched telephone network)] and Internet Networks” and is generally directed to a “multi-participant system includ[ing] a PSTN client, at least one remote client and a first participant client.” Ex. 1001, codes (54), (57). That is, the inventions claimed relate to “audio and video telecommunications for collaboration over hybrid networks.” *Id.* at 1:19–20. The PSTN client is configured to communicate audio data, and the remote clients are connected to the Internet and are configured to receive audio-visual data. *Id.* at 3:25–28.

Figure 3, which illustrates one embodiment that allows audio, video, and data collaboration information to be securely transferred between a plurality of local and remote clients with a virtual private network, is reproduced below. *Id.* at 4:56–59.

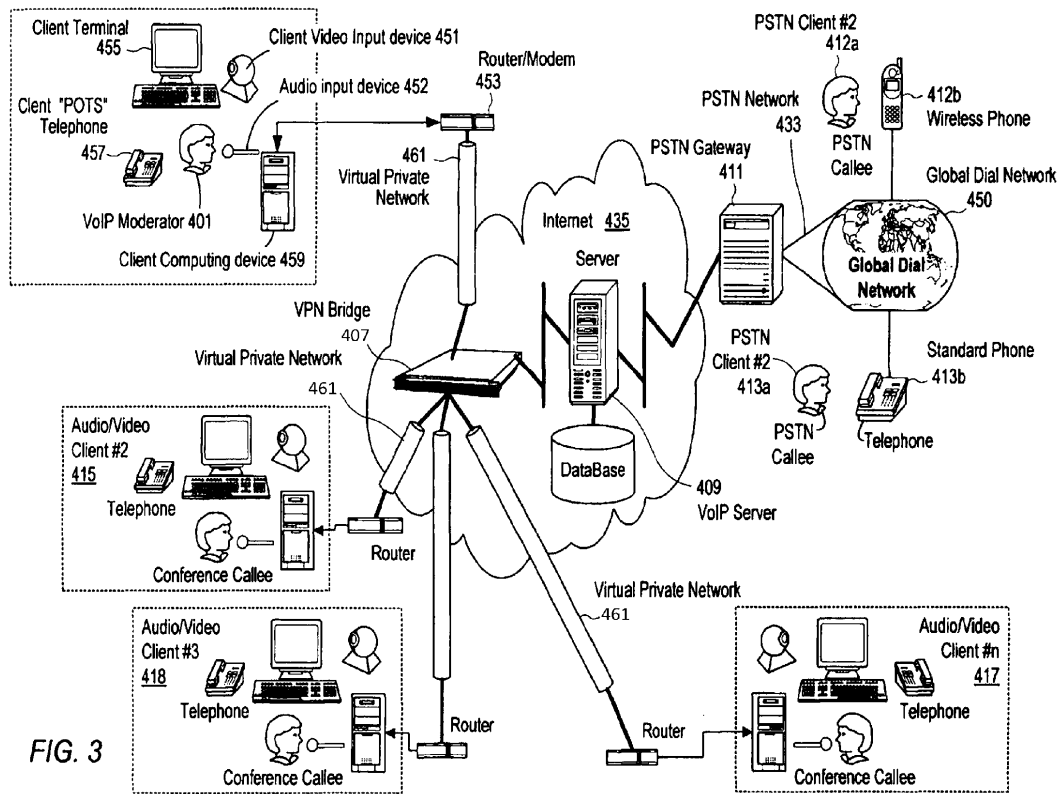


Figure 3, above, depicts voice over IP moderator 401, Internet audio video clients 415, 417, and 418 and PSTN clients 412 and 413. Ex. 1001, 5:4–23. PSTN clients 412 and 413 are connected to a wireless cell phone and standard telephone handset, respectively, which are connected to global dial network 450 based on PSTN 433. *Id.* at 5:18–23. Internet clients 401, 415, 417, and 418 “are connected through routers or modems 453 preferably in a virtual private network configuration 461.” *Id.* at 5:24–26. “A virtual private network bridge 461 is used to connect local and remote clients together within a secure private network.” *Id.* at 5:27–28. “A local connection from the VPN bridge 407 to the voice over IP server 409 is used to transfer conference audio from any participant on the IP network to any

participant in the PSTN.” *Id.* at 5:28–31. “Thus, the voice over IP server 409 is responsible for transcoding audio information from the virtual private network 461 to and from the PSTN gateway 411, thus bridging the PSTN and VPN together.” *Id.* at 5:31–35. VPN bridge 407 is at the center of a “star” network topology, and connections to the VPN bridge serve as a VPN tunnel. *Id.* at 5:46–49.

The embodiment depicted in Figure 3 “provides the ability for a moderator (single member of the conference) to dial out from a desktop computer or terminal (using a novel hybrid network structure) connecting an external telephone user’s audio into the audio/video conference.” Ex. 1001, 4:60–64. “The embodiment integrates full duplex audio, video, and data connections between clients conferencing on the Internet and clients conferencing on standard telephone systems.” *Id.* at 4:64–67. “The Internet/PSTN hybrid network is the medium used for transport.” *Id.* at 4:67–5:1. The ’525 patent also describes encoding and decoding using audio and video codecs of the International Telecommunication Union (ITU) H.323 standard, which “focuses on the transmission of audio and video information through the Internet or switched private networks,” and data collaboration capability as described in the ITU T.120 multimedia conferencing standard. *Id.* at 1:54–58, 2:57–63, 3:12–14.

D. Illustrative Claim

Among the challenged claims, claims 9 and 17 are independent. Independent claims 9 is reproduced below, with Petitioner’s identifiers in brackets.

9. [9.P] A non-transitory computer-readable medium including instructions for a multi-participant conference process

to be executed by a local moderator computer, the process comprising:

[9.1] receiving audio data from a telephone through a public switched telephone network (P[ST]N);

[9.2] receiving audio data and video data from a first remote computer through an Internet,

[9.3] receiving audio data and video data from a second remote computer through the Internet;

[9.4] receiving audio data from a local audio input device communicatively connected to the local moderator computer;

[9.5] receiving video data from a local video input device communicatively connected to the local moderator computer;

[9.6] mixing the audio data received from the telephone with the audio data received from the local audio input device and the video data received from the local video input device into mixed audio-video data;

[9.7] transmitting the mixed audio-video data to the first remote computer and the second remote computer;

[9.8] mixing the audio data received from the first remote computer and the audio data received from the second remote computer with the audio data received from the local audio input device into mixed audio data;

[9.9] compressing the mixed audio data;

[9.10] transmitting the compressed mixed audio data to the telephone;

[9.11] and transmitting collaboration data to the first remote computer and the second remote computer.

Ex. 1001, 10:44–11:6.

E. Prior Art and Asserted Challenge to Patentability

Petitioner asserts that claims 9–20 are unpatentable on the following challenge (Pet. 4):

Claims Challenged	35 U.S.C. § ¹	Basis/References
9–20	103(a)	Drell, ² Knappe, ³ Elliott ⁴

In support of its proposed challenge, Petitioner relies on a Declaration of Henry H. Houh, Ph.D. *See* Ex. 1003. In opposition, Patent Owner relies on the Declaration of Thomas Dye. *See* Ex. 2001.

III. ANALYSIS

A. Legal Standards

A claim is unpatentable under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness,

¹ Because the ’525 patent issued from a patent application that was filed before March 16, 2013, patentability is governed by the version of 35 U.S.C. § 103 preceding the Leahy-Smith America Invents Act (“AIA”), Pub L. No. 112–29, 125 Stat. 284 (2011).

² U.S. Patent No. 7,089,285 B1 (issued Aug. 8, 2006) (Ex. 1008).

³ U.S. Patent No. 7,180,997 B2 (issued Feb. 20, 2007) (Ex. 1006).

⁴ U.S. Patent No. 6,690,654 B2 (issued Feb. 10, 2004) (Ex. 1007).

i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A patent claim “is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR*, 550 U.S. at 418. An obviousness determination requires finding “both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (citation omitted); *see KSR*, 550 U.S. at 418. Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418; *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’” (citation omitted)).

B. Level of Ordinary Skill in the Art

Petitioner asserts a person of ordinary skill in the art:

would have had a bachelor’s degree in computer science, computer engineering, or an equivalent, and three or more years of professional experience relating to conferencing systems in packet-based networks, or without said professional experience, further education relating to conferencing systems in packet-based networks.

Pet. 8 (citing Ex. 1003 ¶¶ 24–27).

Patent Owner disagrees with Petitioner’s proposal “because it is too specialized and would instead be properly characterized as a person of extraordinary skill in the art.” PO Resp. 11–12 (citing Ex. 2001 ¶¶ 3–4).

According to Patent Owner, a person of ordinary skill in the art “would have a bachelor’s degree in electrical engineering, computer science, or equivalent with two years or more of experience in computing systems development.” *Id.* at 12 (citing Ex. 2001 ¶ 3).

Petitioner disputes Patent Owner’s proposal, arguing that a person of ordinary skill in the art’s “credentials should at least include experience in the field of the invention as recited by the patent.” Reply 2. Petitioner also argues that none of Patent Owner’s arguments turn on the proposed level of skill in the art, so under either definition, the result is the same. *Id.* at 3.

We agree with Petitioner. Although Patent Owner proposes an alternative level of ordinary skill in the art, Patent Owner does not explain how it impacts Petitioner’s contentions or Patent Owner’s arguments in opposition. Indeed, at the hearing, Patent Owner’s counsel stated “I can’t point to a material difference that would change the outcome of this.” Tr. 49:10–15. Therefore, it appears that neither party contends that the differences in their proposals affects the outcome of this proceeding.

Nothing in the full record persuades us that our preliminary finding in the Institution Decision, adopting Petitioner’s proposal, was incorrect. *See* Paper 6, 9. Therefore, we maintain our adoption of Petitioner’s proposed level of ordinary skill in the art, as consistent with the ’525 patent’s specification and the level of ordinary skill in the art reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). However, our findings would not change even under Patent Owner’s proposed level of skill in the art.

C. Claim Construction

Petitioner contends that no terms require express construction, and asserts that the Petition “analyzes the claims consistent with their ordinary and customary meaning as would be understood by a [person of ordinary skill in the art] in light of the specification.” Pet. 9.

Patent Owner argues that the claim terms should be construed consistent with how they were construed in a claim construction order in *Meetrix IP, LLC v. Citrix Systems, Inc. et al.*, Case No. 1:16-cv-1033-LY, Dkt. No. 69 (W.D. Tex.).⁵ PO Resp. 12 (citing Ex. 1038 (claim construction order)). Patent Owner provides the district court’s construction for thirteen terms, including, for example, “mixed audio-video data” (recited in claim 9), “Virtual Private Network” (recited in claims 13 and 14), VPN “tunnel” (recited in claims 19 and 20), “first mixer” and “second mixer” (recited in claim 17), and “third mixer” (recited in claim 18). *Id.*

Petitioner responds that none of Patent Owner’s arguments rely on any of the district court’s claim constructions or suggest that Petitioner’s arguments are inconsistent with any of the district court’s claim constructions. Reply 2; *see* Tr. 26, 17–19 (Petitioner’s counsel stating “We don’t think that any of the constructions impact the analysis.”).

We agree with Petitioner that no claim construction is necessary for purposes of this Decision. That is, Patent Owner does not argue, and we do

⁵ Petitioner was not a party to this district court litigation. *See* Tr. 8:21–23 (Petitioner’s counsel stating “[w]e were not involved, Zoho was not involved in that claim construction process that resulted in the construction from the Western District of Texas.”).

not discern, that any claim terms are in controversy on the current record.⁶ *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Alleged Obviousness Over Drell, Knappe, and Elliott

Petitioner contends claims 9–20 would have been obvious over the combination of Drell, Knappe, and Elliott. Pet. 13–65. After reviewing the entire record developed at trial, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 9–16 would have been obvious over the combination of Drell, Knappe, and Elliott. We determine that

⁶ Although Patent Owner references the district court’s claim construction for “Virtual Private Network (VPN)” and “VPN tunnel” in connection with its arguments for dependent claim 19 (PO Resp. 27–31), Petitioner argues, and we agree, that Patent Owner’s arguments do not rely upon these claim constructions or suggest that Petitioner’s arguments are inconsistent with any of these constructions. Reply 2–3; *see* Tr. 8:1–9:1 (Petitioner’s counsel stating that “We don’t actually have a problem with [the district court’s] construction [of VPN]. I think it may be overly broad, but it doesn’t impact our analysis in either way.”); Tr. 9:2–14 (Petitioner’s counsel stating that “[T]here’s no difference between how Dr. Houh applied tunneling and how the [district court] construed it, so we’re fine with either construction . . . In fact, I see them as the same construction.”); Tr. 47:11–13 (Patent Owner’s counsel stating “I agree with [Petitioner’s counsel] that it may not matter whether his construction, his expert’s construction from the textbook is used or ours is for virtual private network.”). Petitioner also does not dispute Patent Owner’s contention in connection with its arguments for claim 18 that the “third mixer” must be “distinct,” i.e., “not the first or second mixers.” PO Resp. 27; *see* Reply 15 (“[C]ontrary to Patent Owner’s assertion, the prior art does disclose separate mixers.”)

Petitioner has *not* shown, by a preponderance of the evidence that claims 17–20 would have been obvious over the combination of Drell, Knappe, and Elliott.

1. *Drell (Ex. 1008)*

Drell is titled “Videoconferencing Apparatus Having Integrated Multi-Point Conference Capabilities” and is generally directed to a “multi-point (MP) conference application that enables the apparatus to combine and distribute audio and video signals received from a plurality of remote conference endpoints.” Ex. 1008, codes (54), (57).

Figure 1, reproduced below, depicts an exemplary operating environment of the multi-point conferencing application:

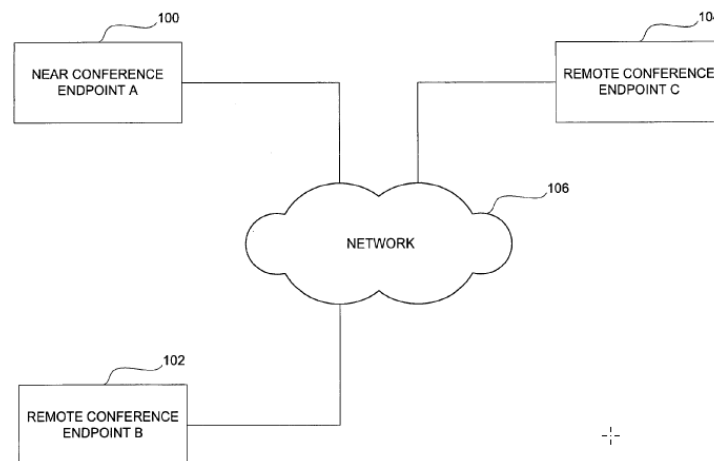


FIG. 1

Figure 1 depicts remote conference endpoint 100 and remote conference endpoint 104 connected via network 106 to near conference endpoint 102, which includes Drell’s “multi-point (MP) conferencing application” and “call manager application.” Ex. 1008, 3:4–8, 4:11–13. “Remote conference endpoints 102 and 104 may comprise, for example, conventional videoconferencing devices equipped to transmit and receive both video (image) data and audio (speech) data.” *Id.* at 3:8–12.

“Typically, network 106 will comprise the public switched telephone network (PSTN) or comparable circuit switched network to which each of the conference endpoints is connected by one or more [Integrated Services Digital Network (ISDN)] lines.” Ex. 1008, 3:24–26. “Alternatively, network 106 may comprise a packet switched network, such as the Internet.” *Id.* at 3:33–34. Although Figure 1 illustrates a “single network 106[,] . . . the invention contemplates the use of two or more networks (for example, the PSTN and the Internet) to connect conference endpoints utilizing different communication protocols.” *Id.* at 3:34–38.

Figure 2, reproduced below, depicts in block form the various components of near conference endpoint 100:

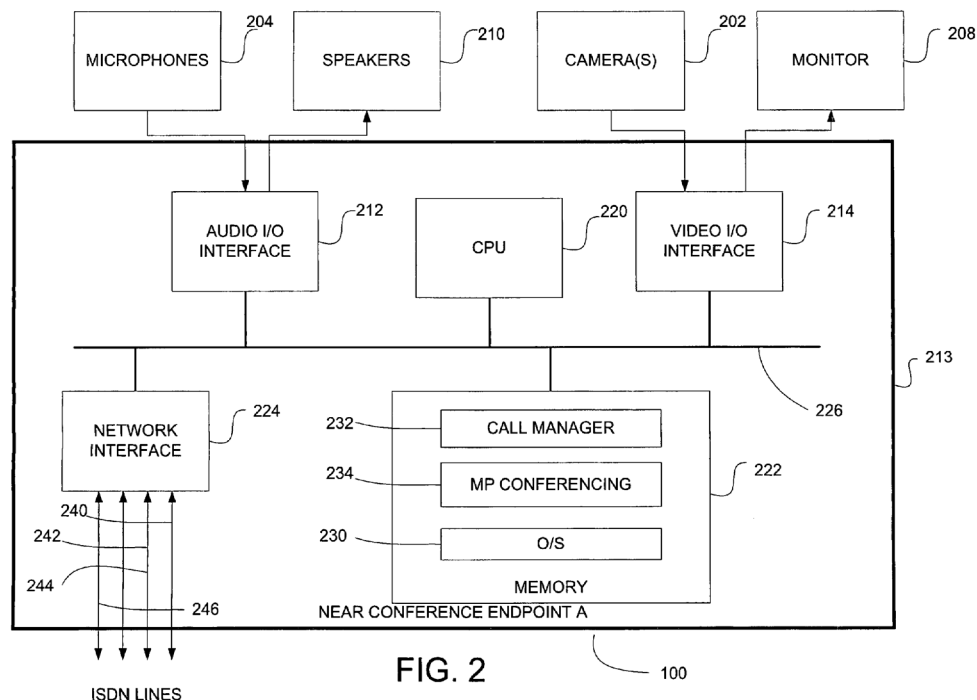


Figure 2 shows near conference endpoint 100 includes, among other things, conventional video camera 202 and microphone 204 to generate video and

audio signals, video monitor 208 and loudspeaker 210 to present images and speech of the remote conference participants, CPU 220, audio I/O interface 212, console electronics 213, video I/O interface 214, and memory 222 including call manager application 232 and MP conferencing application 234. Ex. 1008, 3:39–53.

“Call manager application 232 controls the establishment and termination of connections between near conferencing endpoint 100 and remote conference endpoints 102 and 104.” Ex. 1008, 4:15–18. “MP conferencing application 234 is configured to instantiate a processing train for each remote conference endpoint 102 and 104 to which near conference endpoint 100 is connected.” *Id.* at 4:21–24. “The processing trains process audio and video data streams received from remote conferencing endpoints 102 and 104.” *Id.* at 4:25–26. “The processed audio and video data streams are combined with each other and with locally generated audio and video streams, and the combined audio and video streams are thereafter distributed to remote conferencing endpoints 102 and 104.” *Id.* at 4:27–31.

Figure 3, which depicts components of MP conferencing application 234, is reproduced below:

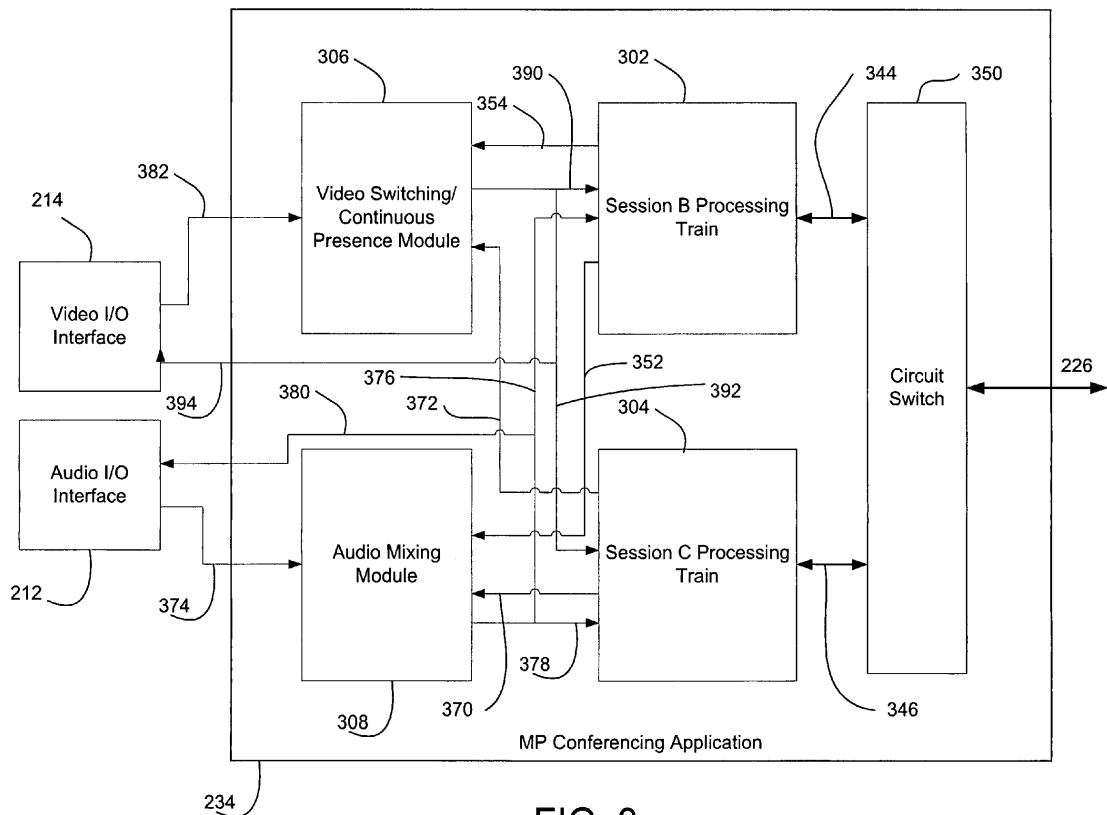


FIG. 3

Figure 3 depicts MP conferencing application, including circuit switch 350, a plurality of processing trains 302 and 304, a video switching/continuous presence module 306, and an audio mixing module 308. Ex. 1008, 4:32–38. Audio mixing module 308 “is configured to combine audio data received from remote conference endpoints 102 and 104 with locally generated audio data (received from audio I/O interface 212[])” and “generates an output audio data stream (or plurality of output audio data streams).” *Id.* at 5:8–18. Video switching/continuous presence module 306 “combines video data received from remote conference endpoints 102 and 104 with locally generated video data (received from video I/O interface 214 via video data path 382” and generates an output video stream (or a plurality of output

video streams). *Id.* at 5:26–46. The output audio and video data streams are “encoded and combined to form a mixed encoded audio/video data stream.” *Id.* at 5:50–52. Processing train 302 includes communication process 404 that “multiplexes the encoded audio and video data streams into a single audio/video data stream 344.” *Id.* at 5:65–66, 6:46–48; *see id.* at Fig. 4.

2. *Knappe (Ex. 1006)*

Knappe is titled “Method and System for Improving the Intelligibility of a Moderator During a Multiparty Communication Session” and is generally directed to “an improved method and system for enhancing the intelligibility of a moderator during a multiparty communication session . . . [to] enhance[] the ability of the moderator to control the organization, flow and/or control of the conference.” *Ex. 1006*, code (54), 1:59–67.

Figure 1, which depicts communication system 12, is reproduced below:

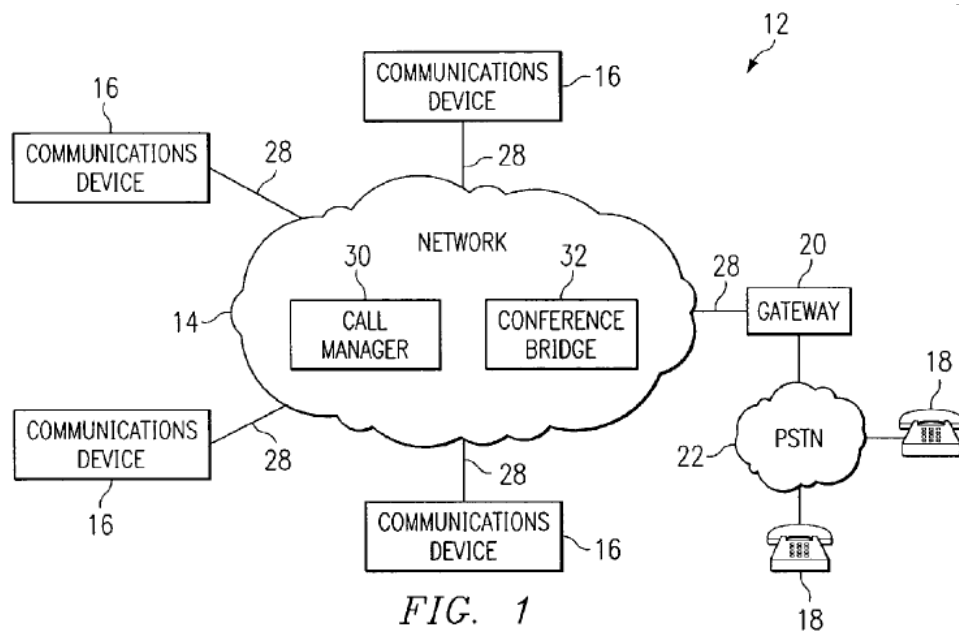


Figure 1 is a block diagram of communication system 12, which “includes a network 14 connecting a plurality of communication devices 16 to each

other and to standard analog telephones 18 through a gateway 20 and the public switched telephone network (PSTN) 22.” Ex. 1006, 3:41–45.

The “network 14 is the Internet, a wide area network (WAN), a local area network (LAN) or other suitable packet-switched network.” Ex. 1006, 3:50–53. “The communication devices 16 comprise IP or other digital telephones, personal and other suitable computers or computing devices, personal digital assistants (PDAs), cell or other mobile telephones or handset or any other device or set of devices such as the telephone 18 and gateway 20 combination capable of communicating real-time audio, video and/or other information over the network 14.” *Id.* at 3:62–4:1. “The gateway 20 provides conversion between analog and/or digital formats.” *Id.* at 4:18–19.

Network 14 includes call manager 30 and conference bridge 32. Ex. 1006, 4:29–30. “The call manager 30 controls the conference bridge 32 to set up, process and tear down conference calls and other multiparty communication sessions.” *Id.* at 5:29–31. “During the multiparty communication sessions, participants are connected and stream media through the conference bridge 32.” *Id.* at 5:31–33. Under control of call manager 30, “conference bridge 32 provides real-time multiparty audio connections between three or more participants.” *Id.* at 5:42–44. “[T]he conference bridge 32 receives media from participating devices 16 and, using suitable signal processing techniques, mixes the media to produce conference signals.” *Id.* at 4:63–66. “[M]ultiparty communications sessions includ[e] real-time audio streams and/or video streams.” *Id.* at 5:46–47.

Conference bridge 32 includes a mixer 58. Ex. 1006, 5:49–52. “The mixer 58 includes a plurality of summers or other suitable signal processing resources each operable to sum, add or otherwise combine a plurality of

input streams into conference output streams for participants to a conference call.” *Id.* at 6:33–37. Figure 3, reproduced below, illustrates mixer 58 in a monaural embodiment.

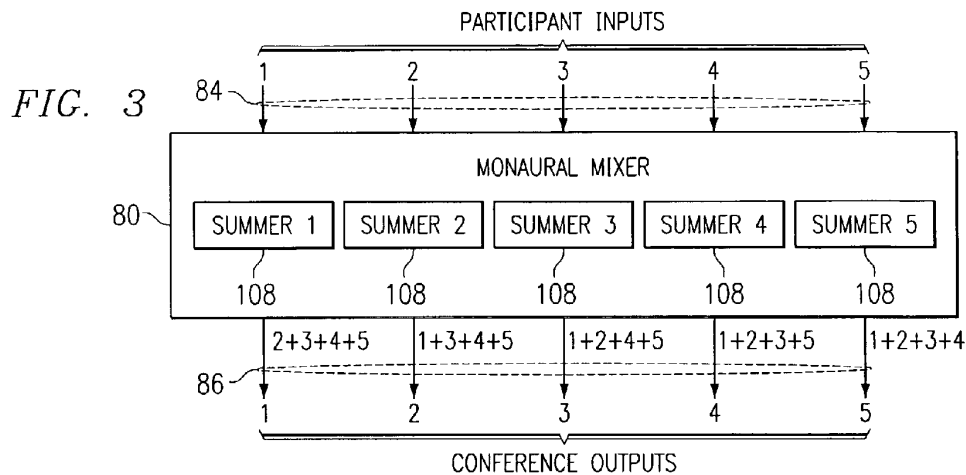


Figure 3 depicts monaural mixer 80 receiving participant input streams 84 and combining the streams in summers 82 to generate conference output streams 86 for each participant in the conference call. Ex. 1006, 6:59–65.

“The summer 82 combines the audio input streams to generate a conference output stream for delivery to the participant.” *Id.* at 6:65–67. Knappe states:

During normal operation, each participant receives the audio input of each other participant. Thus, for example, the conference output stream of participant 1 includes the audio inputs of participants 2–5. Similarly, the conference output stream of participant 2 includes the audio inputs of participants 1 and 3–5. The conference output stream of participant 3 includes the audio inputs of participants 1–2 and 4–5. The conference output stream of participant 4 includes the audio inputs of participants 1–3 and 5. The conference output stream of participant 5 includes the audio inputs of participants 1–4.

Id. at 7:1–11. One of the participants may be the conference moderator. *Id.* at 7:12. “The audio input 84 of the conference moderator may be amplified

and/or the audio input 84 of the remaining participants attenuated to focus on or provide higher prominence to the audio input 84 of the conference moderator.” *Id.* at 7:12–15.

3. *Elliott (Ex. 1007)*

Elliott is titled “Method and System for Multi-Media Collaboration Between Remote Parties,” and generally relates to “computer networks and specifically to a method and system for multi-media collaboration between remote parties.” Ex. 1007, code (54), 1:27–30. “Multi-media collaboration refers to the use of more than one media stream (e.g.: voice, fax, data, video, etc.) used in collaboration with more than one party.” *Id.* at 2:66–3:1.

“Multi-media collaboration services allow two or more parties to exchange information in a conference setting,” and “[t]hese services can be readily provided over the Internet and include collaborative Web browsing, audio conferencing, video conferencing, and application sharing.” *Id.* at 1:40–44.

Figure 1, reproduced below, illustrates the network architecture 10 of a preferred embodiment.

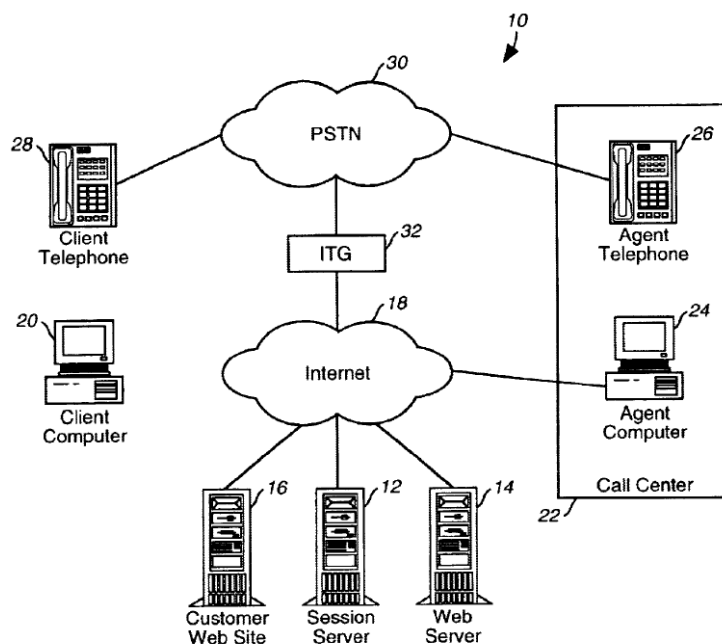


FIG. 1

Figure 1 depicts network architecture 10 which includes, among other things, shared network resources as represented by session server 12, customer web site 16, and web server 14, to provide resources to a plurality of parties including clients (client telephone 28 and client computer 20), agents (agent telephone 26 and agent computer 24), and call center 22. Communications between the parties can be made over network 18, which is “at least two (and preferably more) computers interconnected together so that communication between them is possible.” *Id.* at 4:4–9. As shown in Figure 1, the public Internet is an exemplary Internet Protocol-based (IP-based) network 18, but network 18 may also comprise “either a public or a carrier supported virtual private network (VPN) or a local area network (LAN) which uses IP or IP-tunneling.” *Id.* at 4:10–12, 30–34.

4. Independent Claim 9

Petitioner contends that Drell, Knappe, and Elliott teach each limitation of independent claim 9. Pet. 22–46. Petitioner also provides

reasons, supported by the testimony of Dr. Houh, why it would have been obvious to one of ordinary skill in the art to combine the references. *Id.*; *id.* at 16–21. Petitioner’s contentions and Patent Owner’s arguments in opposition, are set forth below.

- a) 9[P]: *A non-transitory computer-readable medium including instructions for a multi-participant conference process to be executed by a local moderator computer, the process comprising:*

Petitioner relies on the combination of Drell and Knappe to teach the preamble. Pet. 22–24. Petitioner contends that Drell teaches a “near conference endpoint 100” with “a central processing unit (CPU) 220 for executing program instructions, a memory 222 for storing applications, data, and other information,” which renders obvious a “*non-transitory computer-readable medium including instructions.*” *Id.* at 22 (citing Ex. 1008, 3:39–63, Fig. 2; Ex. 1003 ¶¶ 380–381, 387). Petitioner further contends that near conference endpoint 100 includes “memory 222 [that stores] . . . a call manager application 232, and the MP conferencing application 234.” *Id.* (alteration in original) (citing Ex. 1008, 4:11–13). Petitioner contends that a person of ordinary skill in the art would have understood that “the call manager application 232 and the MP conferencing application 234 stored in near conference endpoint 100 facilitate a multi-participant conferencing process between the participants at the near conference endpoint 100 and remote conference participants 102 and 104 (in other words, a multi-participant conference process).” *Id.* at 22–23 (citing Ex. 1003 ¶¶ 382, 383). Petitioner contends that it would have been obvious to a person of ordinary skill in the art “that the stored applications comprise instructions because

computer applications and software generally comprise instructions.” *Id.* at 23 (citing Ex. 1003 ¶ 384); *see also* Ex. 1003 ¶¶ 385–388).

Petitioner further contends that Knappe teaches that at least one of the conference participants may be a moderator, and that it would have been obvious to a person of ordinary skill in the art “to designate the user of Drell’s near conference endpoint 100 as the moderator . . . when the near conference endpoint 100 is facilitating the conference call.” Pet. 23 (citing Ex. 1006, 8:52–56; Ex. 1003 ¶¶ 389, 390). Petitioner contends that doing so “would allow for the user of the near conference endpoint (acting as the moderator) to control the flow and organization of the conference.” *Id.* (citing Ex. 1006, 1:53–55; Ex. 1003 ¶¶ 148–168, 390). Petitioner, therefore, contends that the combination “teaches that the user of the near conference endpoint 100 is a ‘moderator’ computer” and that the “instructions are to be executed by a CPU of the moderator near conference endpoint,” i.e., that the “instructions” are “to be executed by a local moderator computer.” *Id.* at 24 (citing Ex. 1008, Fig. 1; Ex. 1003 ¶¶ 391, 392).

Petitioner provides three reasons why it would have been obvious to a person of ordinary skill in the art to designate one of Drell’s endpoint users as a moderator, as taught by Knappe: (1) “doing so would beneficially allow the user (acting as the moderator) to initiate, organize, control, and influence the conference”; (2) “as there are a finite number of participants in a conference, it would have been obvious to try designating one of Drell’s endpoint users as a moderator”; and (3) the combination is “merely the ordinary use of a common technique (designating a conference endpoint as a moderator per Knappe) in the similar system of Drell to yield predictable

results of initiating, organizing, controlling, and influencing the conference.” Pet. 17 (citing Ex. 1003 ¶¶ 151–152).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that Drell and Knappe teach the recited elements.⁷

b) [9.1] receiving audio data from a telephone through a public switched telephone network (PSTN);

Petitioner relies on Drell and Knappe to teach this limitation. Pet. 24–27. Petitioner contends that Drell discloses transmission of audio and video data over the PSTN and the Internet, and, therefore, connects a remote PSTN conference endpoint to a videoconferencing system via the PSTN. Pet. 24–25 (citing Ex. 1008, 3:20–37; Ex. 1003 ¶¶ 181, 182, 394, 395).

Petitioner further contends that a person of ordinary skill in the art would understand that standard telephones communicate over the PSTN, and that Knappe describes “multiparty communication sessions” with use of “telephone 18 and gateway 20 . . . capable of communicating real-time audio, video and/or other information over the network 14.” Pet. 25 (citing Ex. 1003 ¶¶ 183–185, 395, 396; Ex. 1006, 3:27–28, 3:65–4:1). Petitioner, therefore, contends that it would have been obvious to a person of ordinary skill in the art “to implement Drell’s PSTN conference endpoint as a PSTN telephone, because it would facilitate the communications of audio data over the PSTN during conferencing,” thus rendering obvious “*a telephone*

⁷ Petitioner does not argue that the preamble limits claim 9. Although we find that the evidence supports that the prior art teaches the preamble, we make no determination whether the preamble of claim 9 is limiting.

through a public switched telephone network (PSTN).” Id. (citing Ex. 1003 ¶ 397).

Petitioner further contends that Drell teaches that communication between conference endpoints includes audio streams, and therefore, teaches “*receiving audio data from a telephone through a public switched telephone network (PSTN).*” Pet. 25–26 (citing Ex. 1008, 4:25–26; Ex. 1003 ¶¶ 181, 184). Petitioner contends that Knappe teaches that audio data from a PSTN telephone would be communicated through a gateway. *Id.* (citing Ex. 1006, 4:18–25).

With respect to the combination, Petitioner contends that it would have been obvious to a person of ordinary skill in the art to use Knappe’s gateway in Drell’s system to convert the standard audio data from the PSTN telephone conference endpoints into a format suitable for conference endpoints in an Internet network. Pet. 26 (citing Ex. 1003 ¶¶ 148–168, 184–185, 397–398; Ex. 1006, Fig. 1); *see also id.* at 26–27 (citing Ex. 1008, Fig. 1 (annotated with Ex. 1006, Fig. 1); Ex. 1003 ¶¶ 399, 400); *id.* at 20–21 (citing Ex. 1003 ¶ 166). According to Petitioner, this would “allow conference data to be transmitted between Drell’s PSTN conference endpoints and near conference endpoint 100 over networks (PSTN and Internet) that utilize different protocols, thereby furthering Drell’s objective.” Pet. 21 (citing Ex. 1008, 3:20–37; Ex. 1003 ¶ 166). Petitioner further contends that the “result would have been predictable and there would have been a reasonable expectation of success in applying Knappe’s gateway teachings to Drell, since both relate to similar conferencing systems and using gateways was conventional and known to be applied in the conferencing context.” *Id.* (citing Ex. 1003 ¶¶ 153, 160, 164, 167).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [9.1] and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

c) *[9.2] receiving audio data and video data from a first remote computer through an Internet,*

Petitioner relies on Drell to teach this limitation. Pet. 27–29. Petitioner contends that Drell’s network 106 “may comprise a packet switched network, such as the Internet.” *Id.* at 27 (citing Ex. 1008, 3:33–34). Petitioner further contends that Drell’s remote conference endpoints 102 and 104 transmit and receive both video (image) data and audio (speech) data, and that a person of ordinary skill in the art would understand that Drell’s remote conference endpoint 102 could be a “*computer*,” i.e., a “*first remote computer*.” *Id.* at 27–28 (citing Ex. 1008, 3:4–23, 4:39–53; Ex. 1003 ¶ 406). Petitioner contends that a person of ordinary skill in the art would understand that Drell’s near conference endpoint 100 receives audio and video data from remote conference endpoint 102 through the Internet. *Id.* at 28–29 (citing Ex. 1008, Fig. 1; Ex. 1003 ¶¶ 193, 402, 403).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that Drell teaches limitation [9.2].

- d) [9.3] receiving audio data and video data from a second remote computer through the Internet;*

Petitioner relies on Drell to teach this limitation. Pet. 29–30.

Petitioner relies on its contentions for [9.P] and limitation [9.2], and further contends that remote conference endpoint 104 renders obvious “*a second remote computer.*” *Id.* at 29 (citing Ex. 1008, Fig. 1; Ex. 1003 ¶ 409).

Petitioner, therefore, contends that near conference endpoint 100 receives audio and video data from the second remote conference endpoint 104 through the Internet network 106. *Id.* at 30 (citing Ex. 1003 ¶¶ 410–411).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that Drell teaches limitation [9.3].

- e) [9.4] receiving audio data from a local audio input device communicatively connected to the local moderator computer;*

Petitioner relies on Drell to teach this limitation. Pet. 30–32.

Specifically, Petitioner relies on microphone 204 at Drell’s near conference endpoint 100 providing audio signals representative of “locally generated . . . speech” to teach this limitation. *Id.* at 31–32 (citing Ex. 1008, 3:39–51, 4:32–38, 5:8–13; Ex. 1003 ¶¶ 414–417); *see also* Ex. 1008, Fig. 2. Petitioner contends microphone 204 is “*communicatively connected to*” near conference endpoint 100 and its MP conferencing application 234 via audio I/O interface 212. *Id.* at 32 (citing Ex. 1008, Fig. 2; Ex. 1003 ¶¶ 415–418).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that Drell teaches limitation [9.4].

- f) [9.5] receiving video data from a local video input device communicatively connected to the local moderator computer;*

Petitioner relies on Drell to teach this limitation. Pet. 30–32.

Specifically, Petitioner relies on video camera 202 at Drell’s near conference endpoint 100 providing video signals representative of “locally generated images” to teach this limitation. *Id.* at 32–33 (citing Ex. 1008, 3:39–53, 4:32–38, 5:26–31; Ex. 1003 ¶¶ 421–426); *see also* Ex. 1008, Fig. 2.

Petitioner contends video camera 202 is “*communicatively connected to*” near conference endpoint 100 and its MP conferencing application 234 via video I/O interface 214. *Id.* at 33 (citing Ex. 1008, Fig. 2; Ex. 1003 ¶ 423).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that Drell teaches limitation [9.5].

- g) [9.6] mixing the audio data received from the telephone with the audio data received from the local audio input device and the video data received from the local video input device into mixed audio-video data;*

Petitioner relies on Drell and Knappe to teach this limitation. Pet. 34–39. Petitioner relies on its contentions for limitations [9.1], [9.4], and [9.5], and further contends that Drell’s audio mixing module 308 receives locally generated audio data from microphone 204 (“*local audio input device*”) via audio I/O interface 212, and video switching/continuous presence module 306 receives locally generated video data from video camera 202 (“*local video input device*”) via video I/O interface 214. *Id.* at 34 (citing Ex. 1003 ¶ 428).

Petitioner contends that Drell's audio mixing module 308, as combined with Knappe, renders obvious "*mixing the audio data received from the telephone with the audio data received from the local audio input device.*" Pet. 35 (citing Ex. 1003 ¶ 431). Petitioner contends that it would have been obvious to a person of ordinary skill in the art that (1) when "Drell's conference system includes an additional conference endpoint connected via the PSTN . . . , the audio data received from the PSTN telephone conference endpoint would also be combined in the audio mixing module 308" and (2) "during conferencing, the audio mixing module 308 would mix the audio data stream from the microphone of moderator near conference endpoint 100 with the audio data stream from the PSTN telephone conference endpoint . . . so that the participant using the PSTN telephone could participate in the conference call, with the participant's speech being included [in] the mixed audio data streams transmitted to other participants." *Id.* at 34–35 (citing Ex. 1003 ¶¶ 430, 431; Ex. 1008, 5:48–54, 6:46–52, 7:30–31).

Petitioner contends that the video output by Drell's video switching/continuous presence module 306 would include video data from video camera 202, and teaches "*the video data received from the local video input device.*" Pet. 35–36 (citing Ex. 1008, 5:26–30, 5:39–47; Ex. 1003 ¶ 432). Petitioner further contends that Drell teaches "instantiating, for each endpoint, a processing train that includes a 'communication process 404' that receives mixed audio data from the audio mixing module 308 and mixed video data output by the video switching/continuous presence module 306," and then "multiplexes the encoded audio and video data streams into a single audio/video data stream." *Id.* at 36 (citing Ex. 1008, 4:21–24, 5:51–63,

5:65–66, 6:33–48, Fig. 4; Ex. 1003 ¶ 433). Petitioner contends that this “single audio/video data stream” that is output by communication process 404 renders obvious “*mixed audio-video data*.” *Id.* at 36–37 (citing Ex. 1008, Fig. 3; Ex. 1003 ¶¶ 433–435).

Petitioner further contends that “Knappe supplements and explains how to mix audio data from multiple conference endpoints,” so implementing Knappe’s mixers into Drell would produce beneficial results. Pet. 18 (citing Ex. 1003 ¶¶ 154–159). That is, “Knappe teaches using a mixer 80 with a plurality of summers (*e.g.*, summers 1 to 5, one for each participant), where each mixes audio data from the other participants.” *Id.* (citing Ex. 1006, 6:59–7:15, Figs. 1–3; Ex. 1003 ¶ 155). Petitioner contends that it would have been obvious to a person of ordinary skill in the art that, “when implementing a mixer in Drell, to use a plurality of summers (one for each participant) as Knappe teaches, because this would allow for generating separate audio instances for each conference endpoint,” which would “complement Drell’s teaching of generating separate instances for each endpoint.” *Id.* (citing Ex. 1003 ¶¶ 156, 137; Ex. 1008, 2:19–21, 6:66–7:4). Petitioner further contends that it would have been obvious “to include a separate summer for each participant because doing so would allow for the exclusion of audio of the participant receiving the mixed audio, thereby avoiding undesirable audio effects.” *Id.* at 19 (citing Ex. 1003 ¶ 158).

According to Petitioner, if “*mixed audio-video data*” is construed to exclude “data from the recipient of the mixed data,”⁸ *i.e.*, data from the first

⁸ Petitioner contends that this construction was adopted in prior district court litigation for other “mixed data” limitations, *i.e.*, the participant would not

and second remote computer, the combination of Drell and Knappe still teaches the limitation. *Id.* at 38 (citing Ex. 1038, 30; Ex. 1003 ¶ 436). Specifically, Petitioner contends that Knappe teaches that participants' audio streams "are mixed so that 'each participant receives the audio input of each other participant,' but not the participant's own audio input." *Id.* (citing Ex. 1006, 5:35–39, 7:1–11; Ex. 1003 ¶ 437). Petitioner contends that implementing this functionality "would complement Drell's teaching of generating 'separate processing trains for signal streams from/to each of the remote conference endpoints.'" *Id.* (citing Ex. 1008, 2:19–21). According to Petitioner, a person of ordinary skill in the art would understand that "receiving one's own audio creates the possibility of audio feedback or echo, which adversely affects the conference experience." *Id.* (citing Ex. 1003 ¶ 438); *see id.* at 18; Ex. 1003 ¶ 158. Petitioner also contends that Knappe teaches limiting the number of participants' audio streams that are mixed together in order to prevent overlapping speech from "rendering the conversation unintelligible" and "provide[] higher prominence to the audio input 84 of the conference moderator." Pet. 38–39 (citing Ex. 1006, 9:18–21, 9:29–30, 7:13–15; Ex. 1003 ¶ 439).

Based on these disclosures in Knappe, Petitioner contends that it would have been obvious to a person of ordinary skill in the art "for Drell's audio mixing module 308 to exclude from its mixed audio output the audio data received from the remote conference endpoints 102 and 104 ('first and

receive their own data. Pet. 38 (citing Ex. 1038, 30). As discussed above in Section III.C. (Claim Construction), Patent Owner argues that the district court's constructions should be adopted here. However, Patent Owner doesn't specifically argue one way or the other whether the combination of Drell and Knappe teaches "mixed audio-video data."

second remote computers’))” because doing so would provide certain benefits, such as furthering Drell’s goal of generating separate processing instances for each conference endpoint, increasing the intelligibility of the moderator, enhancing the moderator’s control over the conference, and avoiding undesirable audio effects, such as feedback. Pet. 39 (emphasis omitted) (citing Ex. 1003 ¶¶ 148–168, 440, 441).

Patent Owner argues that Knappe “discloses a centralized system,” whereas Drell “avoid[s] the need for a Multipoint Control Unit (MCU).” PO Resp. 18. Patent Owner argues that “[d]ue to this fundamental difference, a [person of ordinary skill in the art] would not be motivated to combine Knappe with Drell.” *Id.* (citing Ex. 2001 ¶ 21). Patent Owner argues that “neither reference teaches mixing the audio signal from the telephone and a locally generated audio-video signal, specifically designed for dissemination to the first and second remote computers.” *Id.* at 19. Rather, Patent Owner argues, “[i]n Drell, both the first and second remote computers receive a consolidated audio-video signal encompassing data from all participants, including inputs from the telephone, local audio-video device, and the first and second remote computers.” *Id.* Patent Owner argues that “[i]n Knappe, unique signals are transmitted to the first and second remote computers,” excluding the first or second remote computers. *Id.*

We are persuaded that the combination of Drell and Knappe teaches limitation [9.6]. Patent Owner’s arguments improperly address Drell and Knappe individually, rather than the combination of Drell and Knappe on which Petitioner relies. *See Soft Gel Techs., Inc. v. Jarrow Formulas, Inc.*, 864 F.3d 1334, 1341 (Fed. Cir. 2017) (attacking a reference individually does not show non-obviousness where petitioner’s ground is premised on the

combination of references); Reply 7. As described above, Petitioner provides extensive reasoning, supported by testimony from Dr. Houh, explaining how the combination of Drell and Knappe teaches limitation [9.6], and provides reasoning for why a person of ordinary skill in the art would combine the references. Patent Owner's arguments largely do not address Petitioner's contentions and fail to address Petitioner's arguments in support of the combination. In addition, Petitioner supports its arguments with citations to the references and credible declarant testimony from the vantage of a person of ordinary skill in the art, while Patent Owner's arguments as to the interpretation of the references and motivations (or lack thereof) of a person of ordinary skill in the art are insufficiently supported by testimony from the viewpoint of a person of ordinary skill in the art or citation to the references.⁹ *See* PO Resp. 18–19. We find Petitioner's interpretation of the references and motivation to combine more persuasive than Patent Owner's insufficiently supported attorney argument on these issues.

Patent Owner also fails to explain how the alleged “fundamental” differences in Knappe and Drell have any bearing on how they are used in the proposed combination. *See* PO Resp. 18–19; Sur-reply 3–5. Rather,

⁹ Although Patent Owner cites to paragraph 21 of Mr. Dye's Declaration (PO Resp. 18), this testimony does not support the arguments for which it is cited. In the Sur-reply, Patent Owner incorrectly states that paragraph 20 of Mr. Dye's Declaration was cited rather than paragraph 21 (Sur-reply 4 n. 1 (“In the POR at p. 18, Patent Owner mistakenly cited ¶ 20 rather than ¶ 21 of Mr. Dye's Declaration supporting the proposition that a POSITA would not be motivated to combine the references.”)). Regardless whether paragraph 20 or paragraph 21 was intended, as discussed below, this testimony merely repeats arguments made in the Sur-reply. *See* Sur-reply 4–5.

Patent Owner’s argument merely points out alleged differences between the references, while essentially ignoring their commonalities. *See* PO Resp. 18–19; Sur-reply 3–5. To the extent Patent Owner is arguing that it would not have been obvious to physically combine the references or bodily incorporate them into each other,¹⁰ Petitioner states, with supporting testimony from Dr. Houh, that the proposed combination “permits, *but does not require*, physical incorporation of elements from Drell and Knappe.” Pet. 21 (citing Ex. 1003 ¶ 168) (emphasis added).

In the Sur-reply, Patent Owner further argues that “Drell and Knappe deal with traditional video conferencing and conferencing systems—dedicated circuit architecture using traditional hardware,” whereas “the ’525 patent is directed to ‘computer system architecture and more particularly to audio and video telecommunications for collaboration over hybrid networks.’” Sur-reply 4 (citing Ex. 1001, 1:17–20); *see* Sur-reply 2–3. To the extent that Patent Owner is arguing that Drell and Knappe are not analogous art to the ’525 patent, we do not find this persuasive. As Petitioner argues, both references pertain “to the field of multiparty conferencing, including mixing data from Internet and PSTN conference endpoints.” Pet. 16 (citing Ex. 1008, code (54), 3:33–37; Ex. 1006, 3:41–51, 6:59–62; Ex. 1003 ¶¶ 148). Patent Owner also argues¹¹ that “[n]either Drell

¹⁰ “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 the references would have suggested to those of ordinary skill in the art.” *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

¹¹ This is a new argument raised in the Sur-reply. However, even if we consider this argument, we do not find it persuasive for the reasons stated.

nor Knappe reflect or disclose an understanding of the requirements of the different mixers or would teach or suggest this to a person of skill in the art,” (Sur-reply 5; *see* Sur-reply 2) but, aside from this conclusory statement, does not further address or explain why Petitioner’s contentions as to Drell or Knappe are incorrect. Although Patent Owner cites to paragraph 20 of Mr. Dye’s Declaration, this testimony merely repeats what is stated in the Sur-reply. In this instance, “the cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight.” *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB August 24, 2022) (precedential); *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Upjohn Co. v. Mova Pharm. Corp.*, 225 F.3d 1306, 1311 (Fed. Cir. 2000) (“Lack of factual support for expert opinion going to factual determinations, however, may render the testimony of little probative value in a validity determination.”) (quoting *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985)).

Accordingly, after considering the evidence and arguments of the complete record, we determine Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [9.6] and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

h) [9.7] transmitting the mixed audio-video data to the first remote computer and the second remote computer;

Petitioner relies on the combination of Drell and Knappe to teach this limitation. Pet. 39–40. Petitioner relies on its contentions for limitations [9.2], [9.3], and [9.6], and further contends that Drell discloses “transmitting the combined audio and video signals to each of the plurality of remote conference endpoints.” *Id.* (citing Ex. 1008, 7:30–31, 3:20–64, 5:51–64; Ex. 1003 ¶¶ 444–445).

Patent Owner argues that “Knappe is transmitting data from the first remote computer, telephone, and local input device to the second remote computer and data from the second remote computer, telephone, and local input device to the first remote computer,” so “Knappe and Drell, even in combination, lack the essential information necessary to satisfy the criteria delineated in the claim.” PO Resp. 19–20; *see also* Sur-reply 5 (arguing that “Knappe does not **mix** voice signals”). In the Sur-reply, Patent Owner also repeats similar arguments to those made with respect to limitation [9.6]. Sur-reply 5–6.

We are persuaded that the combination of Drell and Knappe teaches limitation [9.7], for similar reasons as discussed above for limitation [9.6]. Patent Owner’s arguments again improperly address Knappe individually, rather than the combination of Drell and Knappe on which Petitioner relies. Moreover, it is unclear from Patent Owner’s arguments what, specifically, Patent Owner contends is missing from the combination of Drell and Knappe.

As set forth above, Petitioner has provided extensive discussion, supported by testimony from Dr. Houh, explaining how the combination of

Drell and Knappe teaches limitation [9.7], and provides reasoning for why a person of ordinary skill in the art would combine the references, which we find persuasive. Therefore, after considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [9.7].

- i) *[9.8] mixing the audio data received from the first remote computer and the audio data received from the second remote computer with the audio data received from the local audio input device into mixed audio data;*

Petitioner relies on the combination of Drell and Knappe to teach this limitation. Pet. 40–42. Petitioner relies on its contentions for limitations [9.2], [9.3], [9.4], and [9.6], and further contends that Drell teaches “mixing the audio data received from the first remote conference endpoint 102 and the second remote conference endpoint 104 with the locally generated audio data received from the microphone 204 into mixed audio data.” *Id.* at 40–41 (citing Ex. 1008, 5:8–23, code (54), 2:34–52, 3:45–48, 4:25–31; Ex. 1003 ¶¶ 448–449).

Petitioner contends that the “*mixed audio data*” is further recited in limitations [9.9] and [9.10] as being transmitted to a “*telephone*.” Pet. 41 (Ex. 1001, 11:3–6; Ex. 1003 ¶ 450). For similar reasons as discussed above for limitation [9.6], Petitioner contends that, in the event “*mixed audio data*” is interpreted to exclude “data from the recipient of the mixed data,” the combination of Drell and Knappe still teaches this limitation, i.e., that a person of ordinary skill in the art “would have been motivated to have Drell’s audio mixing module 308 to exclude from its mixed audio output the audio data received from the PSTN telephone conference endpoint.” *Id.* at

41–42 (citing Ex. 1038, 30; Ex. 1003 ¶¶ 148–168, 436, 437, 440, 451–454; Ex. 1006, 5:35–39, 7:1–11).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [9.8].

j) [9.9] compressing the mixed audio data;

Petitioner relies on Drell and Knappe to teach this limitation. Pet. 42–43. Petitioner relies on its contentions for limitation [9.6], and further contends that Drell teaches encoding audio data using a compression algorithm. *Id.* at 42 (citing Ex. 1008, 6:33–45; Ex. 1003 ¶ 457). Petitioner contends that Drell teaches that its communication process includes a “H.323 (packet-based) process.” *Id.* (citing Ex. 1008, 2:17–33). Petitioner contends that a person of ordinary skill in the art “would have understood that H.323 processing includes using compression codecs and protocols described in the H.323 standard.” *Id.* (citing Ex. 1003 ¶¶ 458–459).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [9.9].

k) [9.10] transmitting the compressed mixed audio data to the telephone;

Petitioner relies on Drell and Knappe to teach this limitation. Pet. 43–45. Petitioner relies on its contentions for limitations [9.1] and [9.9], and further contends that Drell teaches that the near conference endpoint 100 “transmit[s] the combined audio and video signals to each of the plurality of

remote conference endpoints.” *Id.* at 43 (alteration in original) (citing Ex. 1008, 7:27–31). Petitioner contends that Drell discloses that “[i]n the transmission mode . . . the received data streams are then encoded and combined to form a mixed encoded audio/video data stream, and the encoded audio/video data stream is transmitted.” *Id.* (alterations in original) (citing Ex. 1008, 5:48–54). Petitioner contends that, as discussed in connection with limitation [9.9], Drell’s encoding step includes performing audio compression, so the transmitted “encoded audio/video data stream” includes the compressed mixed audio data. *Id.* (citing Ex. 1003 ¶¶ 462–463). Petitioner, therefore, contends that it would have been obvious to a person of ordinary skill in the art to “transmit the compressed mixed audio data to the [PSTN] telephone” conference endpoint. *Id.* (internal quotation marks and brackets omitted; alteration in original) (citing Ex. 1003 ¶¶ 463–465). Petitioner further contends that, as discussed in connection with limitation [9.1], it would have been obvious to a person of ordinary skill in the art to utilize a gateway, as taught by Knappe, in Drell’s system. *Id.*

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [9.10].

l) [9.11] and transmitting collaboration data to the first remote computer and the second remote computer.

Petitioner relies on Drell, Knappe, and Elliott to teach this limitation. Pet. 45–46. Petitioner relies on its contentions for limitations [9.2] and [9.3], and further contends that Drell teaches “that MP conferencing application 234’s ‘processing train 302 may include a data codec for coding and

encoding still images and the like received from and transmitted to remote conference endpoints.” *Id.* at 45 (citing Ex. 1008, 6:53–56). Petitioner contends that a person of ordinary skill in the art would have understood that Drell’s “still images” which are encoded with a “data codec,” teach “*collaboration data*.” *Id.* (citing Ex. 1003 ¶¶ 471–472). Petitioner also contends that Drell’s disclosure of H.323 (packet-based) process would have led a person of ordinary skill in the art to understand disclosure of “*collaboration data*,” because H.323 was a well-known standard that recommended T.120 collaboration data. *Id.* (citing Ex. 1008, 2:26–33; Ex. 1003 ¶¶ 472–474). Therefore, Petitioner contends that Drell teaches this limitation. *Id.* at 45–46.

Petitioner further contends that Elliott teaches collaboration data in the conferencing context, including “application sharing” data, “web browsing” data, and collaboration data per the T.120 standard. Pet. 46 (citing Ex. 1007, 1:40–44, 5:54–61, 3:50–54, 6:46–54, 5:49–61). Petitioner contends that Elliott teaches “exchanging or pushing collaboration data” per the T.120 standard, which teaches “*transmitting collaboration data*,” as claimed. *Id.* (citing Ex. 1003 ¶¶ 475–476). According to Petitioner, a person of ordinary skill in the art “would understand that Drell’s processing trains 302 and 304, which include a ‘data codec’ . . . could transmit collaboration data to remote conference endpoints 102 and 104, which would allow different ways for the participants to collaborate thereby enhancing the effectiveness of the collaboration among the participants.” *Id.* (citing Ex. 1003 ¶¶ 303–317, 477); *see also* Ex. 1003 ¶ 478.

Patent Owner does not respond to these arguments.¹² *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell, Knappe and Elliott teaches limitation [9.11] and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

m) Summary of Independent Claim 9

Accordingly, after considering the evidence and arguments of the complete record, we determine Petitioner has shown, by a preponderance of the evidence, that the combination of Drell, Knappe and Elliott teaches the limitations in claim 9 and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

5. Dependent Claims 10–12

Petitioner contends that claims 10–12 are obvious over the combination of Drell, Knappe, and Elliott. Pet. 47–52. Patent Owner does not respond to these arguments. *See generally* PO Resp. We have reviewed Petitioner’s contentions, including the cited portions of Drell, Knappe, and Elliott, as well as Dr. Houh’s testimony in support of these assertions. We determine that, on this record, Petitioner has shown by a preponderance of the evidence that dependent claims 10–12 would have been obvious over the

¹² Patent Owner’s arguments against the combination of Knappe and Elliott are directed to the “VPN” and “VPN tunnel” limitations recited in dependent claims 13, 14, 19, and 20, and will be discussed below. *See* PO Resp. 16–18.

combination of Drell, Knappe, and Elliott. *See LG Elecs., Inc. v. Conversant Wireless S.A.R.L.*, 759 F. App’x 917, 925 (Fed. Cir. 2019) (nonprecedential) (“The Board is not required to address undisputed matters or arguments about limitations with which it was never presented.”) (quoting *In re NuVasive, Inc.*, 841 F.3d 966, 974 (Fed. Cir. 2016)).

6. *Dependent Claims 13 and 14*

Petitioner contends that dependent claims 13 and 14 would have been obvious over the combination of Drell, Knappe, and Elliott. Pet. 52–54. Claim 13 depends from claim 9 and further recites “wherein the transmitting the mixed audio-video data includes transmitting the mixed audio-video data through a Virtual Private Network (VPN).” Ex. 1001, 11:18–20. Similarly, claim 14 depends from claim 9 and further recites “wherein the transmitting the mixed audio data includes transmitting the mixed audio data through a Virtual Private Network (VPN).” *Id.* at 11:21–23.

With respect to claim 13, Petitioner relies on its contentions for limitation [9.7] that “Drell and Knappe teach transmitting the mixed-audio video data to the remote conference endpoints 102 and 104 (first and second remote computers) over the Internet network 106.” Pet. 52 (Ex. 1003 ¶ 517). Petitioner argues that “Elliott teaches a similar conferencing system . . . [that] uses a VPN for communicating voice, video, and collaboration data over a public network 18, such as the Internet.” *Id.* at 53 (citing Ex. 1007, 2:66–31, 4:6–12, 4:31–34; Ex. 1003 ¶¶ 518–520).

Petitioner contends that it would have been obvious to a person of ordinary skill in the art “to use a VPN in Drell’s system when communicating audio, video, and collaboration data to and from the remote conference 102 and 104, because it would provide Drell with secure communications as the

communications traverse Internet network 106.” *Id.* (citing Ex. 1003 ¶¶ 303–317, 520).

With respect to claim 14, Petitioner relies on its contentions for limitation [9.10] that “Drell in combination with Knappe teaches transmitting the mixed audio data to the PSTN telephone conference endpoint over the Internet network 106 via a gateway.” Pet. 54 (Ex. 1003 ¶ 524). Petitioner relies on essentially the same reasons to combine the references as in claim 13, i.e., that it would have been obvious to a person of ordinary skill in the art “to utilize a VPN when communicating audio data to the PSTN telephone conference endpoint via a gateway (as taught by Knappe), because it would provide Drell with secure communications as the communications traverse Internet network 106.” *Id.* (citing Ex. 1003 ¶¶ 303–317, 525).

Patent Owner argues that a person of ordinary skill in the art would not be motivated to combine Elliott with Drell and/or Knappe. PO Resp. 16–18, 20–21. Patent Owner argues that “Knappe does not teach securing multi-party communication . . . and does not disclose communication using a VPN tunnel adapted to the use of multiple protocols.” *Id.* at 16. Patent Owner argues that Elliott “is directed to a different problem [than Knappe], [so] the single comment in Elliott related to a VPN is never in relation to mixed audio as claimed.” *Id.* (citing Ex. 2001 ¶ 23); *id.* at 21. Patent Owner further argues that there are “fundamental differences” between Elliott and Knappe, so, therefore, “Elliott lacks the motivation or even capability to be integrated with Knappe, unless one were to improperly use the claimed invention as a template using the benefit of hindsight to achieve the results of the claimed invention.” *Id.* at 16–17.

With respect to the combination with Drell, Patent Owner argues that Drell and Elliott are “fundamental[ly] different” because “Drell teaches multipoint video conferencing between multiple users and Elliott is directed to independent call sessions between the remote party and the call center.” PO Resp. 20 (citing Ex. 2001 ¶¶ 20–21); *id.* at 21. Patent Owner argues that “[a]lthough Elliott mentions VPN briefly, it is not suggested for the conference call between multiple parties as required in the claim.” *Id.* Patent Owner also argues that Drell and Knappe have “different objectives” than Elliott so the combination is “inherently improper.” *Id.*

Patent Owner also argues that none of Elliott’s “one-to-one POTS or PSTN phone connection or URL sharing between computers using conventional Internet protocols . . . would suggest to a person of ordinary skill in the art that a VPN tunnel should or could be implemented to protect voice over the Elliott POTS phone connection or access to a publicly-available URL on the Web.” PO Resp. 17 (citing Ex. 2001 ¶¶ 20–21). According to Patent Owner, a VPN “cannot be implemented over PSTN” and “there would be no motivation to protect a direct PSTN connection in the manner claimed.” *Id.* at 17–18 (citing Ex. 2001 ¶ 21).

We agree with Petitioner that the combination of Drell, Knappe, and Elliott teaches claims 13 and 14. Initially, we note that Petitioner combines Elliott with Drell (Pet. 52–53), so Patent Owner’s arguments addressing the combination of Elliott with Knappe are not persuasive. Moreover, as discussed above in connection with limitation [9.6], although Patent Owner sporadically cites to testimony from Mr. Dye’s declaration, this testimony merely repeats what is stated in the Response and Sur-reply without any additional explanation or evidence. Therefore, “the cited

declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight.” *Xerox Corp.*, IPR2022-00624, Paper 9 at 15. In addition, Patent Owner cites to paragraph 21 of Mr. Dye’s declaration in support of its arguments that a VPN “cannot be implemented over PSTN” and “there would be no motivation to protect a direct PSTN connection in the manner claimed,” but the cited testimony does not support these arguments, nor is there any evidence cited in the record to support these arguments.

Patent Owner attempts to distinguish both Drell and Knappe as being related to conferencing scenarios with multiple participants (PO Resp. 16, 20, 21; Sur-reply 7), whereas Elliott’s disclosure pertains solely to one-to-one interactions between a user and a call center (PO Resp. 16–17; Sur-reply 6–7). In support of this argument, Patent Owner cites to testimony from Mr. Dye, which states that “Drell discloses conference scenarios involving the simultaneous connection of multiple participants within a unified all. In contrast, Elliott’s disclosure pertains solely to isolated one-to-one interactions.” Ex. 2001 ¶ 26. However, neither Patent Owner nor Mr. Dye provide any citations to Elliott in support of these arguments. Elliott’s disclosure does not support Patent Owner’s arguments. Elliott states that “the present invention also enables services for one-to-many and *many-to-many* IP-based collaboration.” Ex. 1007, 2:10–13 (emphasis added); *see also id.* at 7:59–61 (discussing “multiple 1:1, 1:n, n:1, and n:n sessions”); *see* Reply 9. Regardless, however, these arguments do not address Petitioner’s stated motivation to combine the references, i.e., to provide Drell with secure communications as the communications traverse Internet network 106 (*see* Pet. 53; Ex. 1003 ¶¶ 303–317, 520) or persuasively explain

how these alleged differences have any bearing on the proposed combination. As discussed above, Petitioner has provided evidence that VPN was well known to secure communications (Reply 9; Ex. 1003 ¶ 311), and reasoning, supported by testimony from Dr. Houh that it would have been obvious to add transport via VPN to Drell in order to provide the benefit of secure communications. E.g., Ex. 1003 ¶¶ 311–314, 520.

Patent Owner also argues that Elliott’s VPN “is never in relation to mixed audio.” PO Resp. 16. As discussed above in connection with limitation [9.6], however, Petitioner relies on the combination of Drell and Knappe to teach the “mixed audio-video data” that includes the audio data received from the telephone, the audio data received from the local input device, and the video data received from the local video input device. *See* Pet. 34–39. The combination involves, among other things, implementing a gateway (as taught in Knappe) in Drell’s system “that receives standard audio data from PSTN telephone conference endpoints and converts the audio data into a format suitable for conference endpoints on an Internet network.” *Id.* at 26 (citing Ex. 1003 ¶¶ 184–185, 397–398; Ex. 1006, 4:18–25) (limitation [9.1]).

Petitioner then relies on Drell and Knappe, combined with Elliott to teach transmitting this mixed audio-video data through a VPN, as taught by Elliott. Pet. 52–53. Elliott expressly discloses VPN and VPN tunnelling over a network. *See* Ex. 1007, 2:66–3:6 (“[m]ulti-media collaboration refers to the *use of more than one media stream* (e.g.: voice, fax, data, video, etc.) used in collaboration with more than one party . . . [and may] include . . . web browsing, chat, telephony, multi-party conferencing, audio-on-demand, video-on-demand, integrated messaging, *virtual private networks*, and

electronic commerce”) (emphasis added); 4:6–34 (“communications between the parties can be made over a variety of networks 18 . . . network 18 can be either a public or a carrier supported virtual private network (VPN) or local area network (LAN) which uses IP or IP-tunneling”). Elliott states that “network 18 is at least two (and preferably more) computers interconnected together so that communication between them is possible.” Ex. 1006, 4:6–8; *see id.* 4:20–21 (“[n]etwork 18 could also comprise other IP-based networks as well as other networks”). Elliott also describes the ability to place internet telephony calls over PSTN, which “are facilitated by internet telephone gateway (ITG) 32 which is provided as an interface between the circuit-switched PSTN 30 and the packet switched IP network 28.” *Id.* at 5:34–39, 6:7–11, Fig. 1.

We are not persuaded by Patent Owner’s arguments that Elliott does not teach transmission of mixed audio because these arguments address Elliott individually, rather than in combination with Drell and Knappe as proposed by Petitioner. Moreover, it is not required that the references themselves suggest the motivation to combine, so Patent Owner’s arguments (PO Resp. 17) that Elliott does not suggest the combination are not persuasive. *See DyStar Testilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006) (stating that motivation to combine prior art references may exist “even absent any hint of suggestion in the references themselves”).

Therefore, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell, Knappe, and Elliott teaches dependent claims 13 and 14 and provides reasons sufficiently

supported by factual underpinnings to combine the references teachings with a reasonable expectation of success.

7. Dependent Claims 15 and 16

Petitioner contends that dependent claims 15 and 16 would have been obvious over Drell, Knappe, and Elliott. Pet. 54–56. Claim 15 depends from claim 9 and further recites “encoding the mixed audio-video data before the transmitting of the mixed audio-video data to the first and second remote computers.” Ex. 1001, 11:24–27. Claim 16 depends from claim 9 and further recites “encoding the compressed mixed audio data before the transmitting of the mixed audio data to the telephone.” *Id.* at 11:28–30.

With respect to claim 15, Petitioner relies on the contentions for limitations [9.6] and [9.7], and claim 13, and further argues Drell teaches using codecs to encode mixed voice data before transmission to the Internet, and Knappe supplements Drell’s teaching with disclosures about encapsulating VoIP packets for transmission over the network. Pet. 19 (citing Ex. 1008, 6:33–45, 3:33–34; Ex. 1003 ¶¶ 161–162; Ex. 1006, 3:50–58). Petitioner contends that it would have been obvious to a person of ordinary skill in the art to apply Knappe’s teachings to Drell because it would be well suited for the packet processing disclosed in Drell, and the result would have been predictable. *Id.* at 19–20. In addition, Petitioner contends that that a person of ordinary skill in the art “would have been familiar with VPN communications and would have known that transmitting data via a VPN includes encoding the data to be transmitted with an encryption algorithm.” *Id.* at 55 (citing Ex. 1003 ¶¶ 535–536, Ex. 1020, 5:41–55); *see also id.* (citing Ex. 1007, 4:30–33; Ex. 1010, 122; Ex. 1031, 3; Ex. 1031, 4; Ex. 1003 ¶ 536).

With respect to claim 16, Petitioner relies on the contentions for limitations [9.9], [9.10], and claims 13, 14, and 15. Pet. 56. In addition, Petitioner contends that it would have been obvious to a person of ordinary skill in the art “to encrypt the data after compressing the data (and not vice versa) because it is not possible to compress encrypted data.” *Id.* (citing Ex. 1003 ¶¶ 545–546).

Patent Owner generally repeats arguments made against the combination of Drell and Knappe as set forth above for limitations [9.6] and [9.7], i.e., that Drell and Knappe are “fundamental[ly] different” because Knappe discloses a centralized system, whereas Drell “avoids the need for a Multipoint Control Unit (MCU).” PO Resp. 22; Sur-reply 7–8. Patent Owner also argues that Knappe “lacks security provided in multi-party conference call via VPN tunnel,” “teaches the codec (coder/decoder) at the communication device,” and “does not provide any information regarding encoding of the mixed audio data and transmitting the encoded mixed data to the remote device.” PO Resp. 22–23; Sur-reply 8.

We agree with Petitioner that that the combination of Drell, Knappe, and Elliott teaches claims 15 and 16. Patent Owner’s arguments against the combination of Drell and Knappe are not persuasive for the same reasons discussed above for limitations [9.6] and [9.7]. In addition, Patent Owner’s arguments regarding Knappe do not address the combination as proposed by Petitioner.

Therefore, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell, Knappe, and Elliott teaches dependent claims 15 and 16 and provides reasons sufficiently

supported by factual underpinnings to combine the references teachings with a reasonable expectation of success.

8. *Independent Claim 17*

Petitioner contends that Drell, Knappe, and Elliott, alone or in combination, teach each limitation of independent claim 9. Pet. 56–63. Petitioner also provides reasons, supported by the testimony of Dr. Houh, why it would have been obvious to one of ordinary skill in the art to combine the references. *Id.*; *id.* at 16–21. Petitioner’s contentions and Patent Owner’s arguments in opposition, are set forth below.

- a) *[17.P] A computer-implemented multi-participant conference system utilizing a local moderator computer, the system comprising:*

Petitioner contends that the combination of Drell and Knappe teaches the preamble. Pet. 57–59. Petitioner relies on the same arguments as for the preamble of claim 9, and further argues that “Drell discloses a system that includes a network 106 – which can be a combination of two networks such as the Internet and Public Switched Telephone Network (PSTN) – for communicating audio/video data between users.” *Id.* at 57 (citing Ex. 1003 ¶ 176). Petitioner argues that a person of ordinary skill in the art “would have understood that Drell’s system uses the Internet and PSTN to facilitate video/audio communications during a conference between near and remote conference endpoints, including Internet and PSTN-based users.” *Id.* at 57–58 (citing Ex. 1003 ¶¶ 176–177); *see id.* at 57 (citing Ex. 1008, 1:16–18, 3:4–11, Fig. 1; Ex. 1003 ¶¶ 175, 548).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record,

we determine that Petitioner has shown, by a preponderance of the evidence, that Drell and Knappe teach the recited elements.¹³

- b) *[17.1] a voice over IP decoder configured to decode audio data received by the local moderator computer from a telephone through a public switched telephone network (PSTN);*

Petitioner contends that the combination of Drell and Knappe teaches limitation [17.1]. Pet. 59–61. Petitioner relies on its contentions for limitation [9.1], and further asserts that it would have been obvious to a person of ordinary skill in the art “that audio data received by near conference endpoint 100 would be in the form of IP packets since the conference endpoint 100 is ‘connect[ed to other] conference endpoints’ over the ‘PSTN and the Internet’ because communications over the Internet use IP packets.” *Id.* at 59–60 (citing Ex. 1006, 3:53–54; Ex. 1003 ¶¶ 271, 272, 555).

Petitioner also relies on its contentions for limitation [11.1.2], to support that “Drell and Knappe teach decoding IP packets received from a PSTN telephone.” Pet. 60 (citing Ex. 1003 ¶¶ 497–505, 555); *see* Pet. 49–51. Petitioner argues that “Drell’s disclosure of a communication process and audio codec renders obvious ‘a VoIP decoder.’” Pet. 60 (citing Ex. 1003 ¶¶ 277–279); *see* Ex. 1008, 6:18–23 (“[a]udio code 408 receives the audio data stream from communication process 44 and . . . decod[es] in accordance with a standard . . . or proprietary audio compression algorithm” and produces a “decoded audio stream”); Reply 11. Petitioner also relies on

¹³ Petitioner does not argue that the preamble limits claim 17. Although we find that the evidence supports that the prior art teaches the preamble, we make no determination whether the preamble of claim 17 is limiting.

Drell’s disclosure that its communication process includes a “H323 (packet-based) process,” which Petitioner asserts “was a well-known standard that specifies encoding and decoding VoIP communication.” Pet. 60 (citing Ex. 1008, 2:17–33; Ex. 1003 ¶¶ 280–281, 500–501); *see* Reply 11.

Petitioner also contends that Knappe’s “codec (coder/decoder)” for processing “IP packets such as VoIP packets . . . encapsulated in real-time transport protocol (RTP) packets” renders obvious a “*VoIP decoder*.” Pet. 60 (citing Ex. 1006, 4:9–14, 3:50–57; Ex. 1003 ¶¶ 282–283, 502–503); *see* Reply 11. Petitioner further relies on Knappe’s “teaching of a PSTN gateway to convert data between an analog format for the PSTN telephone conference endpoint and an IP format for the Internet.” Pet. 50–51; Ex. 1006, 4:9–14 (describing Knappe’s “codec (coder/decoder) [that] converts audio, video . . . IP packets received from the network 14 are converted back into analog signals”).

Petitioner contends that it would have been obvious to a person of ordinary skill in the art “to encode Drell’s real-time audio data in VoIP packets and encapsulate them in [real-time protocol (RTP)] packets for transmission over the Internet, as Knappe teaches, because RTP was specifically created for applications such as Drell’s real-time conferencing application.” Pet. 19 (citing Ex. 1003 ¶ 162; Ex. 1021,¹⁴ 22). Petitioner also contends that a person of ordinary skill in the art “would have been motivated to apply Knappe’s VoIP and RTP teachings to Drell because they are well suited for use with H.323 packet processing,” “[t]he result would have been predictable and there would have been a reasonable expectation of

¹⁴ Robert Caputo, *Cisco Packetized Voice & Data Integration* (McGraw-Hill 2000).

success in applying Knappe's VoIP and RTP teachings to Drell, since use of both VoIP and RTP were known in the conferencing context." *Id.* at 20 (citing Ex. 1003 ¶ 164).

Patent Owner argues that "Knappe lacks the motivation to be combined with Drell" because "[i]ntegrating Knappe's approach would sacrifice" the simplicity of Drell's design which concentrates all processing at the dedicated endpoint, and resulting in a system that is more complex. PO Resp. 23.

We are persuaded that the combination of Drell and Knappe teaches limitation [17.1]. Patent Owner's arguments against the combination are similar to those made for limitations [9.6], i.e., that there are fundamental differences between Drell and Knappe. Patent Owner's arguments against the combination do not specifically address limitation [17.1] or Petitioner's contentions with respect to limitation [17.1], including Petitioner's asserted rationale for combining the references. We do not find Patent Owner's arguments persuasive for the same reasons as discussed with respect to limitation [9.6].

In the Sur-reply,¹⁵ Patent Owner argues that "there is a fundamental difference between VoIP decoding and audio codecs." Sur-reply 8. According to Patent Owner, Petitioner has conflated the two, and "[t]he input to an audio codec would be encoded/compressed audio and not IP packets." *Id.* at 8–9. With regard to Knappe, Patent Owner argues that "Knappe merely discusses use of a traditional gateway node for signal conversion." *Id.* at 9.

¹⁵ This is a new argument raised in the Sur-reply. However, even if we consider this argument, we do not find it persuasive for the reasons stated.

Patent Owner's arguments again address the references individually, rather than in combination as proposed by Patent Owner, fail to address the entirety of Petitioner's contentions, and consist largely of attorney argument with no cited evidentiary support. For example, even assuming Patent Owner is correct that an audio codec and VoIP decoding is different, Patent Owner does not address Petitioner's contentions regarding Drell's communication process including the H.323 (packet-based) standard. *See* Pet. 60; Reply 11. And, as set forth above, Petitioner also relies on Knappe to teach the "voice over IP decoder," and, aside from discussing Knappe's gateway, Patent Owner does not specifically address Petitioner's contentions, or the combination with Drell.

Accordingly, after considering the evidence and arguments of the complete record, we determine Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [17.1] and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

- c) [17.2] a voice over IP encoder configured to compress audio data transported from the local moderator computer to the telephone through the PSTN;*

Petitioner contends that the combination of Drell and Knappe teaches limitation [17.2]. Pet. 61–62. Petitioner relies on its contentions for limitations [9.9] and [9.10], and further contends that a person of ordinary skill in the art "would understand that Drell's H.323 process includes a 'VoIP encoder' for encoding the audio data and the mixed data transmitted to the PSTN conference endpoint (as claimed) because H.323 was a well-known standard for encoding and decoding VoIP communications." Pet. 61

(citing Ex. 1003 ¶ 347). Additionally, Petitioner argues that “Drell’s audio codec and communication process that encodes data for transmission over the Internet using RTP packets (per Knappe) also teaches a ‘VoIP encoder.’” *Id.* at 62 (citing Ex. 1003 ¶¶ 339–349, 559–560); *see id.* at 61 (citing Ex. 1008, 6:33–45, 5:8–25; Ex. 1006, 3:50–58).

Patent Owner argues that Petitioner has not established motivation to combine the references because Knappe distributes tasks like audio mixing and video switching to the network, whereas in Drell “only a specific near conference endpoint equipped with an MP conferencing module can act as the moderator.” PO Resp. 23. Patent Owner further argues that a person of ordinary skill in the art “would not be motivated to modify Drell’s VOIP encoder with Knappe’s compression” because “VOIP encoding and compression of data are two different processes.” *Id.* In addition, Patent Owner argues that “Petitioner has not explained why Knappe and Drell teach a VOIP encoder to compress audio data from the local moderator computer to the telephone line through the PSTN.” *Id.* at 24–25.

We are persuaded that the combination of Drell and Knappe teaches limitation [17.2]. Patent Owner’s arguments again address the references individually, rather than in combination as proposed by Patent Owner, fail to address the entirety of Petitioner’s contentions, and consist largely of attorney argument with no cited evidentiary support. Patent Owner’s contentions that VoIP encoding and compression are two different processes consist entirely of attorney argument, with no evidentiary support. As Petitioner points out, Drell discloses that “audio code 408 encodes the audio data stream . . . using a standard or proprietary audio compression algorithm,” which teaches encoding data using a compression algorithm.

Reply 12 (citing Ex. 1008, 6:33–45; Pet. 41, 42, 61; Ex. 1003 ¶¶ 455–460, 557). And, as discussed above, Drell discloses using an H.323 process, which is a well-known standard for encoding and decoding VoIP communications. *See id.*; Pet. 61; Ex. 1008, 2:26–28; Ex. 1003 ¶¶ 339, 349, 559–560). Patent Owner’s arguments against the combination are similar to those made for limitations [9.6], i.e., that there are fundamental differences between Drell and Knappe. We do not find these arguments persuasive for the same reasons as discussed with respect to limitation [9.6].

Accordingly, after considering the evidence and arguments of the complete record, we determine Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [17.2] and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

- d) [17.3] a first mixer configured to mix decoded audio data received by the local moderator computer from the telephone through the PSTN with audio received by the local moderator computer from a local audio input device and video data received by the local moderator computer from a local video input device into an audio-video stream for transmission through an Internet to a first remote computer and a second remote computer;*

Petitioner contends that the combination of Drell and Knappe teaches limitation [17.3]. Pet. 62. Petitioner relies on its contentions for limitations [9.6] and [9.7]. *Id.* (citing Ex. 1003 ¶¶ 427–445, 561). Patent Owner also presents similar arguments to those made in connection with limitations [9.6] and [9.7]. PO Resp. 25.

For the same reasons as set forth above for limitations [9.6] and [9.7], and, after considering the evidence and arguments of the complete record, we determine Petitioner has shown, by a preponderance of the evidence, that the combination of Drell and Knappe teaches limitation [17.3] and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

- e) *[17.4] a second mixer configured to mix audio data received by the local moderator computer from the first remote computer through the Internet with audio data received by the local moderator computer from the local audio input device into an audio stream for transmission to the telephone through the PSTN; and*

Petitioner contends that the combination of Drell and Knappe teaches limitation [17.4]. Pet. 62–63. Petitioner relies on its contentions for limitations [9.8] and [9.9]. *Id.* (citing Ex. 1003 ¶¶ 446–460, 562). Patent Owner presents the same argument as provided above for limitation [17.2], i.e., that “Knappe lacks the motivation to be combined with Drell” because Knappe distributes tasks like audio mixing and video switching to the network, whereas in Drell, “only a specific near conference endpoint equipped with an MP conferencing module can act as the moderator.” PO Resp. 26; Sur-reply 10. In the Sur-reply, Patent Owner also refers its arguments on the “mixing” limitations of claim 9 (e.g., limitations [9.6] and [9.8]). Sur-reply 10. For the same reasons discussed for limitations [9.6], [9.8], and [17.2], we do not find Patent Owner’s arguments persuasive.

However, to prevail, Petitioner has the burden of proving unpatentability of the challenged claims by a preponderance of the evidence. 35 U.S.C. § 316(e); *see also Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d

1356, 1363 (Fed. Cir. 2016) (“In an [inter partes review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.”). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burdens of proof in an *inter partes* review).

As set forth above, Petitioner relies for this limitation on the analysis for limitations [9.8] and [9.9] of claim 9, asserting that “[t]his limitation of claim 17 recites the same requirements.” Pet. 62. But limitations [9.8] and [9.9] do not recite a “second mixer.” None of Petitioner’s arguments address a “second mixer” or provide explanation as to how the combination of Drell and Knappe teaches a “second mixer” or why a “second mixer” would have been obvious to one of ordinary skill in the art.¹⁶ Nor does any of the cited testimony from Dr. Houh (Ex. 1003 ¶¶ 446–460, 562) explain how the combination teaches a “second mixer.” At the hearing, when asked where the “second mixer” is addressed in the Petition, Petitioner’s counsel referred to pages 38 and 39 of the Petition, which discusses limitation [9.6]. Tr. 35:17–36:15, 37:8–38:1. However, pages 38 and 39 of the Petition discuss *mixing* audio and video data (or streams) into mixed audio-video data, as is recited in limitation [9.6], but do not directly address a “second mixer” or assert that Knappe’s summers teach a “second mixer.”

Therefore, after considering the evidence and arguments of the complete record, we determine Petitioner has *not* shown, by a preponderance

¹⁶ As discussed below in connection with claim 18, Petitioner acknowledges in the Reply that the claim requires “separate” mixers. *See* Reply 15.

of the evidence, that the combination of Drell and Knappe teaches limitation [17.4].

f) [17.5] a data collaboration unit configured to transmit collaboration data from the local moderator through the internet to the first remote computer and the second remote computer.

Petitioner contends that the combination of Drell, Elliott, and Knappe teaches limitation [17.5]. Pet. 63. Petitioner relies on its contentions for limitation [9.11]. *Id.* (citing Ex. 1003 ¶¶ 469–478, 563).

Patent Owner does not respond to these arguments.¹⁷ *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell, Knappe and Elliott teaches limitation [17.5] and that a person of ordinary skill in the art would have had a reason to combine the references in the manner Petitioner proposes, with a reasonable expectation of success.

g) Summary of Independent Claim 17

Accordingly, after considering the evidence and arguments of the complete record, we determine Petitioner has *not* shown, by a preponderance of the evidence, that the combination of Drell, Knappe and Elliott teaches each of the limitations in claim 17. Claims 18–20 depend from claim 17, and therefore, for the same reasons, Petitioner has also not shown by a

¹⁷ As stated above, Patent Owner’s arguments against the combination of Knappe and Elliott are directed to the “VPN” and “VPN tunnel” limitations recited in dependent claims 13, 14, 19, and 20. *See* PO Resp. 16–18.

preponderance of the evidence that the combination of Drell, Knappe, and Elliott teaches those claims. *See Mylan Pharm. Inc. v. Research Corp. Techs., Inc.*, 914 F.3d 1366, 1376 (Fed. Cir. 2019) (“Dependent claims, with added limitations, are generally not obvious when their parent claims are not.”). However, we address the limitations in dependent claims 18–20 below.

9. *Dependent Claim 18*

Petitioner contends that dependent claim 18 would have been obvious over Drell, Knappe, and Elliott. Pet. 63. Claim 18 depends from claim 17 and further recites “a third mixer configured to mix the decoded audio data received from the telephone with the audio data received from the first and second remote computers.” Ex. 1001, 12:24–27.

Petitioner relies on its contentions for limitation [10.1], which depends from claim 9 and recites “mixing the audio data received from the telephone with the audio data received from the first and second remote computers into a second mixed audio data.” Pet. 63 (citing Ex. 1003 ¶¶ 480–484); *id.* at 47. According to Petitioner, “[b]ecause Drell’s audio mixing module 308 mixes the audio data received from each conference endpoint, it would have been obvious to a [person of ordinary skill in the art] that the audio mixing module 308 would mix the audio from the PSTN telephone conference endpoint with the audio received from the remote conference endpoints 102 and 104.” *Id.* at 47 (citing Ex. 1003 ¶ 482); *see id.* at 34–42 (Petitioner’s contentions for limitations [9.6] and [9.8]). According to Petitioner, “[s]uch an audio mix would have been created, for example, to be output to the participants using the near conference endpoint 100.” *Id.* at 46 (citing Ex. 1003 ¶¶ 483–484).

Patent Owner argues that “[a]lthough Knappe discloses the mixing of audio data, it does not disclose multiple mixers of data.” PO Resp. 26. Patent Owner argues that the “district court construed each mixer to be distinct,” that is, the “‘third mixer’ is a mixer that is not the first or second mixers.” *Id.* at 27. According to Patent Owner, “Petitioner does not teach or disclose distinct mixers.” *Id.*

In the Reply, Petitioner argues that it “explained and provided evidence regarding Drell’s disclosure of ‘audio mixing module 308’ and ‘video switching/continuous presence module 306’ that combine audio and video data received from remote conference endpoints with locally generated data.” Reply 14 (citing Pet. 35–36; Ex. 1008, 5:8–30; Ex. 1003 ¶¶ 429–432). Petitioner further argues that Drell “disclosed the generating ‘separate processing trains for signal streams from/to each of the remote conference endpoints.’” *Id.* at 14–15 (citing Ex. 1008, 2:19–21; Ex. 1003 ¶ 438). Therefore, Petitioner argues, “contrary to Patent Owner’s assertion, the prior art does disclose separate mixers.” *Id.* at 15.

For essentially the same reasons as set forth above for limitation [17.4], we agree with Patent Owner that Petitioner has not sufficiently shown that the combination of Drell and Knappe teaches a “third mixer,” as recited in claim 18. Petitioner does not dispute that the “third mixer” is “separate.” *See* Reply 15. However, none of Petitioner’s arguments address a “third mixer,” or provide explanation as to how the combination of Drell and Knappe teaches a “third mixer” or why a “third mixer” would have been obvious to one of ordinary skill in the art. Nor does any of the cited testimony from Dr. Houh (Ex. 1003, ¶¶ 429–432, 438, 480–484) explain how the combination teaches a “third mixer.” Although Petitioner argues

that Drell discloses “separate processing trains,” Petitioner does not provide or cite to any explanation as to how “separate processing trains” teach a “third mixer.” *See* Sur-reply 11 (arguing that “processing trains” are not “mixers” and that Drell distinguishes between the two).

Accordingly, on this record, we determine that Petitioner has *not* shown, by a preponderance of the evidence, that the combination of Drell, Knappe, and Elliott teaches claim 18.

10. Dependent Claims 19 and 20

Petitioner contends that dependent claims 19 and 20 would have been obvious over Drell, Knappe, and Elliott. Pet. 63–65. Claim 19 depends from claim 17 and further recites “wherein the audio data received by the local moderator computer from the telephone through the PSTN is transported through a virtual private network (VPN) tunnel.” Ex. 1001, 12:28–32. Claim 20 also depends from claim 17 and further recites “wherein audio data transported from the local moderator computer to the telephone is transported through a virtual private network (VPN) tunnel.” *Id.* at 12:33–35.

For claim 19, Petitioner generally relies on its contentions for limitations [9.1] and [13.1]. Pet. 64. For example, Petitioner contends that the combination of Drell and Knappe “teaches the moderator near conference endpoint receiving audio data from the PSTN telephone over the Internet network 106 via a gateway,” and “Elliott teaches that the conferencing system transmits audio data over the Internet through a VPN.” *Id.* (citing Ex. 1003 ¶ 568; Ex. 1007, 2:66–3:1, 4:6–34). As in claim 13, Petitioner contends that the combination would have been obvious to a person of ordinary skill in the art “because it would provide Drell with

secure communications as the communications traverse Internet network 106.” *Id.* (citing Ex. 1003 ¶¶ 569, ¶¶ 303–317). For claim 20, Petitioner generally relies on its contentions for limitation [14.1], which are similar to those for claim 13. *Id.* at 64–65 (citing Ex. 1003 ¶¶ 523–526, 572).

Patent Owner argues that “[t]he limitation regarding provision of a VPN tunnel to protect *mixed audio* is taught by neither [Knappe nor Elliott].” PO Resp. 32; Sur-reply 13. Patent Owner continues that “[a]lthough Elliott mentions in passing a Virtual Private Network (VPN), its application can only be understood as directed to ‘network 18,’ which is used to connect two computers over the Internet, and not audio data, mixed or otherwise.” PO Resp. 32–33 (citing Ex. 1007, 4:6–19). According to Patent Owner, the ’525 patent “operates such that data arriving from a remote endpoint via a VPN tunnel is decrypted at the local moderator’s end before being shared with the [PSTN] client” and “[g]iven this intricate decryption and sharing process, combining either Drell’s or Knappe’s teachings with Elliot’s[sic] is inherently unsuitable for these limitations.” *Id.* at 33. Patent Owner argues that the ’525 patent “employ[s] a VPN bridge . . . which is not present in any of the prior arts even by combining it with Elliot.” *Id.*

In addition, Patent Owner argues that Petitioner fails to distinguish between a VPN and a VPN tunnel, which is “crucial.” PO Resp. 33. Patent Owner argues that a VPN or VPN tunneling¹⁸ is not shown by Knappe, Elliott, or Drell, and that “in Elliott, the VPN is mentioned only in the

¹⁸ Patent Owner relies on the district court’s construction of VPN, which is “a private network of securely connected appliances configured within a public network.” PO Resp. 27; Ex. 1038, 32.

context of network 18, which is unrelated to audio communication.” PO Resp. 34; Sur-reply 12. Patent Owner also argues that a VPN tunnel¹⁹ “is not disclosed or suggested for mixed audio data by the art of record.” *Id.* at 35. Patent Owner also argues that “since Elliott is addressed to audio on the POTS service, it teaches away from a VPN tunnel ‘to the telephone.’” PO Resp. 35; Sur-reply 12–13. In the Sur-reply, Patent Owner also argues that “a general understanding of VPN technology does not teach the concept of mixing audio or streaming mixed digital audio, video and collaboration data through a secure VPN tunnel between circuit-switched and packet-switched networks.” Sur-reply 13.

We agree with Petitioner that the combination of Drell, Knappe, and Elliott teaches claims 19 and 20, for similar reasons as discussed above for claims 13 and 14. Patent Owner’s arguments largely address the references individually, rather than the combination proposed by Petitioner. We note that claims 19 and 20 recite receiving and transporting *audio data* by the local moderator computer to and from the telephone through a VPN tunnel. Ex. 1001, 12:28–32, 12:33–35.

As discussed above in connection with limitations [9.1] and [17.1], Petitioner relies on the combination of Drell and Knappe to teach the moderator near conference end point receiving audio data from the PSTN telephone over the Internet network 106 via a gateway. *See* Pet. 25–27, 59. Similarly, as discussed in above in connection with limitations [9.8], [9.9],

¹⁹ Patent Owner relies on the district court’s construction of VPN tunnel, which is “a connection between two devices that permits encapsulating a first packet from one protocol in a second packet from a different protocol.” PO Resp. 27–28; Sur-reply 12; Ex. 1038, 32.

[9.10], and [17.4], Petitioner relies on the combination of Drell and Knappe to teach transmitting mixed audio data from the local moderator near conference endpoint to the PSTN telephone conference endpoint. *Id.* at 40–45, 62. The combination involves, among other things, implementing a gateway (as taught in Knappe) in Drell’s system “that receives standard audio data from PSTN telephone conference endpoints and converts the audio data into a format suitable for conference endpoints on an Internet network” and “decompress[es] the compressed mixed audio data and transmit[s] a corresponding signal to the PSTN telephone conference endpoint.” *Id.* at 26, 44 (citing Ex. 1003 ¶¶ 184–185, 397–398, 467).

Petitioner then relies on Drell and Knappe, combined with Elliott and to teach transport across a VPN tunnel. Pet. 53–54, 64–65. Elliott expressly discloses VPN and VPN tunnelling over a network. *See* Ex. 1007, 2:66–3:6 (“Multi-media collaboration refers to the *use of more than one media stream* (e.g.: voice, fax, data, video, etc.) used in collaboration with more than one party . . . [and may] include . . . web browsing, chat, telephony, multi-party conferencing, audio-on-demand, video-on-demand, integrated messaging, *virtual private networks*, and electronic commerce.”) (emphasis added); 4:6–34 (“[C]ommunications between the parties can be made over a variety of networks 18[, where] . . . network 18 can be either a public or a carrier supported virtual private network (VPN) or local area network (LAN) which uses IP or IP-tunneling.”). Elliott states that “network 18 is at least two (and preferably more) computers interconnected together so that communication between them is possible.” *Id.* at 4:6–8; *see also id.* at 4:20–21 (“Network 18 could also comprise other IP-based networks as well as other networks.”). Elliott also describes the ability to place internet telephony calls over PSTN,

which “are facilitated by internet telephone gateway (ITG) 32 which is provided as an interface between the circuit-switched PSTN 30 and the packet switched IP network 28.” *Id.* at 5:34–39, 6:7–11, Fig. 1. Given this disclosure in Elliott, we are not persuaded by Patent Owner’s argument that Elliott’s network 18 is “unrelated to audio communication.” PO Resp. 34; *see* Reply 16.

We also are not persuaded by Patent Owner’s argument that “a general understanding of VPN does not does not teach the concept of mixing audio or streaming mixed digital audio, video and collaboration data through a secure VPN tunnel between circuit-switched and packet-switched networks.” Sur-reply 13. These arguments also do not address the combination as proposed by Petitioner; Petitioner is not arguing that a general understanding of VPN teaches the limitations in claims 19 and 20. We also agree with Petitioner that Patent Owner’s arguments are not commensurate with the claim language. *See* Reply 16. For example, none of claims 9, 17, 19 or 20 recite an “intricate decryption and sharing process” or a “VPN bridge.” *See* PO Resp. 29.

Therefore, although we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Drell, Knappe, and Elliott teaches the limitations in dependent claims 19 and 20 and provides reasons sufficiently supported by factual underpinnings to combine the references teachings with a reasonable expectation of success, we nonetheless determine that Petitioner has *not* demonstrated that dependent claims 19 and 20 are unpatentable due to their dependency on independent claim 17.

IV. CONCLUSION

For the foregoing reasons, we are persuaded that Petitioner has established by a preponderance of the evidence that claims 9–16 of the '525 patent are unpatentable. We are not persuaded that Petitioner has established that claims 17–20 of the '525 patent are unpatentable.

In summary:²⁰

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
9–20	103(a)	Drell, Knappe, Elliott	9–16	17–20

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 9–16, of the '525 patent have been shown to be unpatentable under 35 U.S.C. § 103(a); and

FURTHER ORDERED that claims 17–20 of the '525 patent have not been shown to be unpatentable under 35 U.S.C. § 103(a); and

²⁰ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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