

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.

IPR2023-00371
Patent 8,339,997 B2

Before KARL D. EASTHOM, BRIAN J. McNAMARA, and
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

McNAMARA, *Administrative Patent Judge*.

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

I. BACKGROUND

In response to a Petition (“Pet.”), on July 19, 2023, we instituted an *inter partes* review of claims 1–10 of U. S. Patent No. 8,399,977 B2 (“the ’997 Patent”). Paper 6 (“Dec. to Inst.”). Patent Owner filed a Patent Owner Response (Paper 10, “PO Resp.”), Petitioner filed a Petitioner Reply (Paper 13, “Pet. Reply”) and Patent Owner filed a Sur-reply (Paper 15, “PO Sur-Reply”). A transcript of an oral hearing held on April 25, 2024 (Paper 26, “Hrg. Tr.”) has been entered into the record.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). We base our decision on the preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

Having reviewed the arguments of the parties and the supporting evidence, we conclude that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims are unpatentable.

II. THE ’997 PATENT

The ’997 patent describes a method that allows standard telephone users to audio conference with video conferencing participants over Internet protocol (IP) networks in a private secure environment. Ex. 1001, code (57). Figure 3 of the ’997 patent, reproduced below, illustrates a multi-party virtual conference connected over the Internet. *Id.* at 6:4–5.

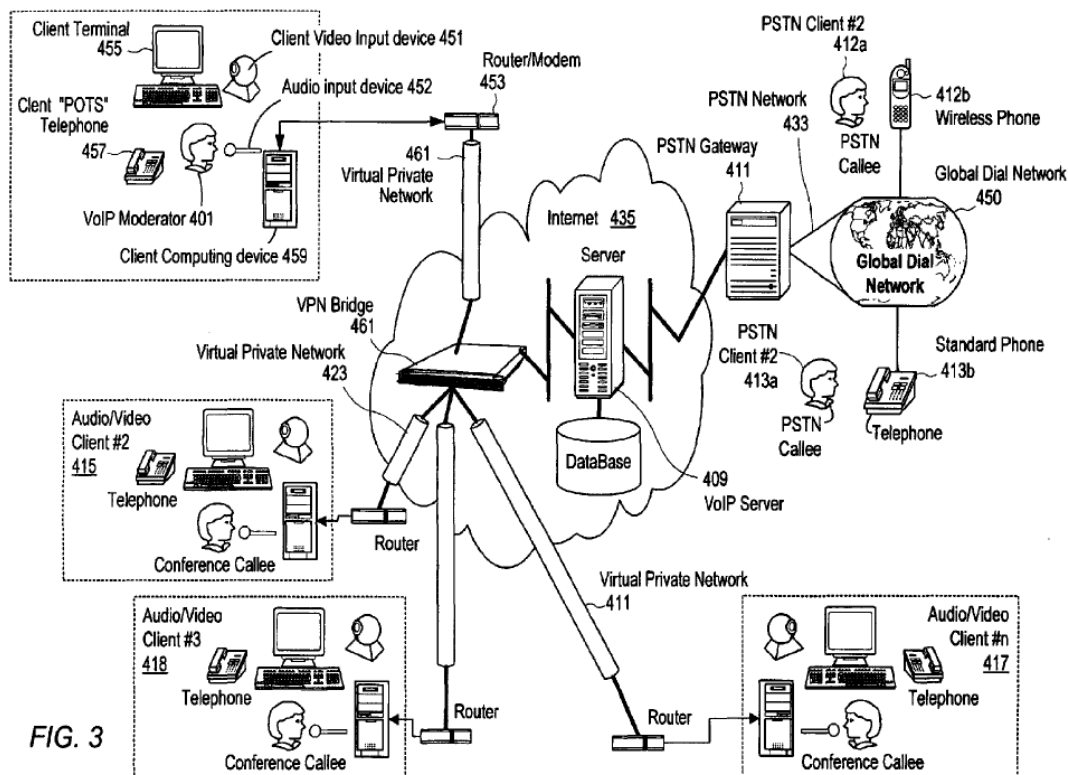


FIG. 3

Ex. 1001, Fig. 3. Figure 3 shows audio-video clients 415, 417, and 418 are Internet based, and telephony clients 412, 413 use standard wireless or wired telephone systems, respectively. *Id.* at 6:4–7. Public switched telephone network (PSTN) client #1, shown at reference designator 412, is connected to wireless cell phone 412b that is in turn connected to global dial network 450 as specified by PSTN 433; remote telephone user client #2, shown as reference designator 413, is connected to standard telephone handset 413b that is connected to global dial network 450 based on PSTN 433. *Id.* at 6:8–15. Moderator 401 and Internet-based clients 415, 417, and 418 are connected through routers or modems, preferably in a virtual private network (VPN) configuration 461. *Id.* at 6:16–18.

VPN bridge 407 connects local and remote clients together within a secure private network. *Id.* at 6:18–20. A local connection from VPN

bridge 407 to voice over internet protocol (VoIP) server 409 transfers conference audio from any participant on the IP network to any participant on the PSTN. *Id.* at 6:21–23. VoIP server 409 transcodes audio information from VPN 461 to and from PSTN gateway 411, thus bridging the PSTN and VPN together. *Id.* at 6:23–27.

The '997 patent discloses a method in which a first message that includes a group address identifying the participants of a conference is sent to each of a plurality of multicast appliances over the Internet. *Id.* at 4:20–24. A plurality of VPNs (virtual private networks) is established across the Internet between the multicast appliances, allowing one or more participants to join the video conference. *Id.* at 4:26–29. The steps of the method include, a participant contacting the telephone participant; establishing a phone number with a VoIP server; the VoIP server communicating with a gateway to call the telephone participant; and the telephone participant participating in the multi-participant video conference. *Id.* at 4:29–35.

III. ILLUSTRATIVE CLAIM(S)

Claims 1, 3 and 11 are independent. Claim 1, reproduced below with paragraph designations used in the Petition, is illustrative of the subject matter of the '997 patent.

- [1.P] A method for adding a telephone participant to a multi-participant audio video conference, the method comprising:
 - [1.1] sending a first message to each of a plurality of multicast appliances over the Internet, wherein the first message comprises a group address which identifies a plurality of participants;
 - [1.2] each of the multicast appliances receiving the first message;
 - [1.3] establishing a plurality of virtual private networks across the Internet routes between the multicast appliances;

- [1.4] enabling at least one of the participants to communicate in the multi-participant video conferences;
- [1.5] the telephone participant joining the multi-participant video conference, wherein said joining comprises:
 - [1.5a] the telephone participant calling into a gateway server;
 - [1.5b] the telephone participant providing conference ID information;
 - [1.5c] the gateway server establishing communication with a conferencing server;
 - [1.5d] authenticating the telephone participant; and
 - [1.5e] transmitting multicast group information to the gateway server;
- [1.6] wherein the gateway server is operable to use the multicast group information to enable the telephone participant to participate in the multi-participant video conference.

Ex. 1001, 10:64–11:23.

IV. GROUNDS OF INSTITUTION

A. References Asserted

We instituted trial on Petitioner’s challenges to the patentability of at claims 1–10 on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 3–7	103 ¹	Knappe, ² Elliott, ³ VPN Textbook, ⁴ de Moraes ⁵

¹ See The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102, 103, and 112. Because the application of the ’997 patent was filed before March 16, 2013 (the effective date of the relevant amendments), the pre-AIA versions of §§ 102, 103, and 112 apply.

² U.S. Patent No. 7,180,997 (Ex. 1006).

³ U.S. Patent No. 6,690,654 (Ex. 1007).

⁴ Guichard *et al.*, “MPLS and VPN Architectures,” publ. 2000 (Ex. 1010).

⁵ de Moraes *et al.*, “The Internet Multicast from ITS: How it was Done and Implications for the Future,” publ. 1995 (Ex. 1022).

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
2, 8–10	103	Knappe, Elliott, VPN Textbook, de Moraes, Shepherd ⁶

B. Testimonial Evidence

In support of its challenges, Petitioner relies upon direct testimony in the Declaration of Dr. Henry H. Houh. Ex. 1003 (“Houh Decl.”). Patent Owner cites the testimony of Mr. Thomas Dye. Ex. 2001, “Dye Decl.” The record does not include any cross examination of either Dr. Hough or Mr. Dye.

Mr. Dye is an inventor of the ’997 patent at issue in this proceeding and identifies himself as a CEO/Founder of Meetrix Inc. from 2002–2010. Ex. 1001 (code 75); Ex. 2001, 10–11. Patent Owner’s Mandatory Notices identify Meetrix IP, LLC as the only real party-in-interest. Paper 3, 1; Paper 24, 1. The record does not state whether there is or was a relationship between Meetrix, Inc. and Meetrix IP, LLC or whether Mr. Dye has any relationship with the current Patent Owner.

Patent Owner states that “Mr. Dye’s testimony is not offered as an inventor per se, but rather that of a person of ordinary skill, from whose vantage point the inventions must be understood.” PO Sur-reply 1 (citing, *Verizon Servs. Corp. v. Cox Fibernet Va., Inc.*, 602 F.3d 1325, 1339–1340 (Fed. Cir 2010)). Mr. Dye characterizes himself as “an expert in network technologies.” Ex. 2001 ¶ 2. As Patent Owner relies on Mr. Dye’s testimony as that of a person of ordinary skill, it is not clear whether Patent Owner asserts that Mr. Dye is also offered as an expert witness.

⁶ U.S. Patent No. 7,281,058 (Ex. 1034).

The court in *Verizon* found “[t]he district court did not abuse its discretion in limiting inventor testimony to factual testimony that did not require expert opinion.” *Id.* In *Verizon* the court cited *Kuhmo Tire, Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999) for the proposition that “the trial judge must have considerable leeway in deciding in a particular case how to go about determining whether expert testimony is reliable.” As an inventor of the claimed subject matter whose testimony is offered as that of a person of ordinary skill, we weigh Mr. Dye’s opinion testimony accordingly.

V. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner asserts that a person of ordinary skill in the art (“POSITA” or “ordinarily skilled artisan”) “would have had a working knowledge of available audio and video conferencing art,” and “a bachelor’s degree in electrical engineering, computer science, computer engineering, or an equivalent, and three years of professional experience relating to conferencing systems in packet-based networks.” Pet. 10 (citing Ex. 1003, Houh Decl. ¶ 27). Petitioner also states that “[s]omeone with less technical education but more experience, or more technical education but less experience could also have met this standard.” *Id.*

Patent Owner contends that Petitioner’s proposal for a person of ordinary skill is too specialized. PO Resp. 11. Patent Owner would characterize an ordinarily skilled artisan as having a bachelor’s degree in electrical engineering, computer science, or equivalent with two or more years of experience in computing systems development. *Id.* (citing Ex. 2001, Dye Decl. ¶¶ 3–4).

Mr. Dye contends that “[m]y opinion of a POSITA is more accurate given that I was a named inventor and qualified POSITA at the time of the patent applications for the Patents-in-Suit.” Ex. 2001, Dye Decl. ¶ 4. Mr.

Dye’s status as an inventor, while possibly relevant, is not determinative of the level of ordinary skill. The level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

Patent Owner’s proposed level of skill references education and experience in computer systems generally, but does not require education and experience specific to the subject matter of the ’997 patent, i.e., “audio and video telecommunications for collaboration over hybrid networks.” *See* Ex. 1001, 1:24–26. As Petitioner’s description of a person of ordinary skill requires some level of education and experience with the subject matter of the ’997 patent and the references, Petitioner’s description appears more applicable to the issues before us. Nevertheless, we determine that, based on the subject matter and the arguments advanced by the parties, the differences in their descriptions of an ordinarily skilled artisan is not material to the outcome of this proceeding.

VI. CLAIM CONSTRUCTION

A. Introduction

We interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2019). In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.”

DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc., 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317.

Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

We construe only those claim terms that require analysis to determine whether to institute *inter partes* review. *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))).

The Petition asserts no claim term requires construction for the Board to evaluate the patentability of the claims. Pet. 7–8. Patent Owner did not file a Preliminary Response. As there were no proposed claim constructions and we did not perceive a need to construe any term, in our Decision to Institute we applied the plain and ordinary meaning to the claim language. Dec. to Inst. 9.

B. District Court Claim Constructions

The Patent Owner Response alleges that Petitioner failed to disclose a claim construction ruling in *Meetrix IP LLC v. Citrix Systems, Inc. et al.*, Case 1:16-cv-1033 (Doc. 69, filed Dec. 1, 2017). PO Resp. 12–13 (citing Ex. 2002). Patent Owner contends that applying the claim constructions adopted by the District Court in that case, the challenged claims do not read on the prior art. *Id.* at 12. Patent Owner does not explain how any of the District Court’s claim constructions affect the outcome of this proceeding.

Id. Petitioner replies that of the 13 claim terms construed in *Meetrix v. Citrix* only 1 (authenticating) appears in the claims of the '997 patent and Patent Owner's arguments do not rely on any of the District Court's constructions. Pet. Reply 2, 12. Petitioner also notes that the District Court litigation involved "another party." *Id.* at 2. Unless otherwise stated elsewhere in this Decision, we do not construe any of the claim terms and we apply their plain and ordinary meaning.

C. Gateway Server

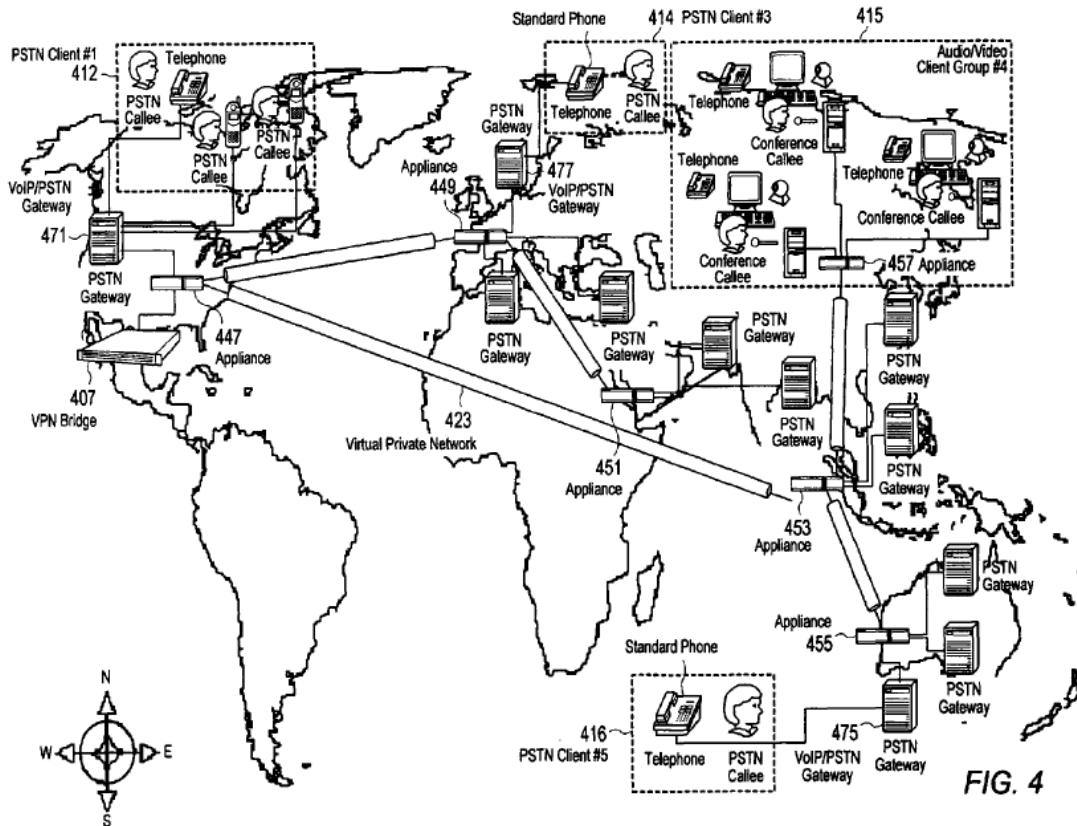
Neither party has formally proposed a construction of the term "gateway server." Nevertheless, although Patent Owner contends it is not making a claim construction argument, in its arguments concerning Knappe's disclosure of a "gateway," Patent Owner contends that Knappe's "gateway" and the claimed "gateway server" "are two different capability devices." PO Resp. 20 (citing Ex. 2001, Dye Decl. ¶ 25); PO Sur-reply 5–6 (arguing that "[a] 'gateway server' is definitionally a server. The plain and ordinary meaning of the term excludes that which is not a server, namely the basic gateway disclosed in Knappe.>").

Patent Owner explicitly defines a "gateway" as "a basic component in networking, serving as a bridge between different networks." PO Resp. 20. According to Patent Owner, the "primary purpose of a gateway is to translate and facilitate data flow between networks that employ different protocols or formats" by handling tasks such as "protocol translation, data encapsulation, and routing." *Id.* As examples of gateways, Patent Owner identifies a home router that connects a local area network to the Internet and a device that converts analog data from a PSTN telephone to digital IP data, as described in Knappe. *Id.* at 20–21.

Patent Owner describes a “gateway server” as operating on a server class computer that combines gateway and server capabilities by managing communications between drivers, networks, and hosting applications, providing security features, and offering services such as caching, load balancing, or authentication. PO Resp. 21; PO Sur-reply 7. According to Patent Owner, the distinction is material because the claimed “gateway server establish[es] communication with a conferencing server” and “is operable to use the multicast group information to enable the telephone participant to participate in the multi-participant video conference.” PO Sur-reply 7.

Petitioner contends that the ’997 patent uses the terms “gateway” and “gateway server” interchangeably. Pet. Repl. 7–10. Petitioner notes that the ’997 patent Specification refers to the elements that communicate with telephone participants simply as a “gateway” and that claim 2, which depends from claim 1, claim 7, which depends from claim 4, and claim 15, which depends from claim 11, all recite a gateway in referring back to the gateway server recited in the claims from which they depend. *Id.* at 9 (citing Ex. 1001, 2:49–52, claims 2, 7, and 15). The term “gateway server” appears in claims 1, 4, 5, 6, 12, 13, and 14.

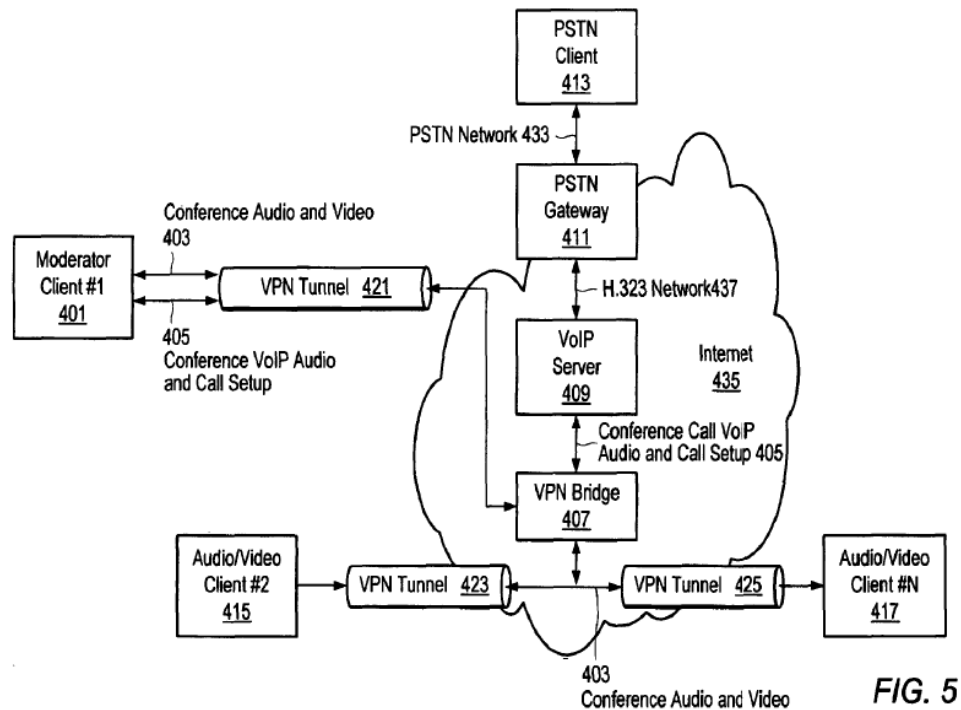
The term “gateway” appears numerous times in the ’997 patent Specification; the term “gateway server” appears only once in the Specification. *See*, Ex. 1001, Fig. 6:60 (referring to “VoIP and gateway servers”). Figure 4 of the ’997 patent, which illustrates an embodiment of a multicast protocol, is reproduced below:



Ex. 1001, 5:12; Fig. 4. Figure 4 illustrates that VPN Bridge 407, referred to in the Specification both as VPN Bridge 407 and as VPN Bridge Server 407 (*see* Ex. 1001, 6:57–61,) is connected to multicast enabled appliance 447. VPN Bridge 407 is connected to VPNs that form network tunnels to one or more multicasting appliances 449, 451, 453, 455, 457, which connect to one or more PSTN gateways. *Id.* at 6:63–67. As an example, the Specification states that if a client is talking, analog audio is converted from switched network PSTN to IP in the VoIP/PSTN gateway 475, the digital IP is routed via the Internet to appliance 455 at the edge of the network typically co-located with gateway 475. *Id.* at 7:1–13. The appliance is configured to have a VPN creating a tunnel to another appliance, e.g., appliance 453, which has an Internet-based VPN tunnel to appliance 457 and appliance 447, such that audio is broadcast to multiple audio devices in IP networks and the

PSTN using a unique group address and VPN structure using the same process regardless of who is the broadcaster of audio or video. *Id.* at 7:13–28.

Figure 5, reproduced below, shows a more detailed block diagram of the embodiment. Ex. 1001, 7:29–30.



In Figure 5, VPN bridge 407 is responsible for connecting and establishing the VPN used for secure conferencing and bridges the VPN tunnels 421, 423, and 425 to be on the same VPN. *Id.* at 7:44–50. An additional server containing conference voice over IP audio and call set-up data, i.e., VoIP, server 409, is responsible for transcoding the voice over IP audio and call set-up control 405 in preparation for transfer over H.323 network 437. *Id.* at 7:52–59. PSTN gateway 411, typically located at a local exchange carrier, bridges between the Internet and PSTN 433. *Id.* at 7:59–63.

Patent Owner does not identify sufficient disclosure in the '997 patent or other evidence to support its assertion that the term “gateway server”

includes functionality that differs materially from that of a “gateway.” As noted above, Patent Owner argues that in accordance with claim 1, “the gateway server establishes communication with a conferencing server’ and “is operable to use the multicast group information to enable the telephone participant to participate in the multi-participant conference.” PO Sur-reply 7 (citing Ex. 1001, claim 1).

The Specification’s description of the functions performed by the appliance and its consistent reference to a “gateway” indicates that the term “gateway server” at column 4, line 60 in conjunction with VoIP server is used interchangeably with “gateway,” as the Specification does not describe any other functions of the gateway server. For example, the Specification describes that “the VoIP server communicating with a gateway to call the telephone participant.” *Id.* at 4:33–34.

According to Patent Owner “the simple gateway of Knappe is incapable of these complex operation. *Id.* (citing Ex. 1006, 4:29–57). We address the implications of the parties’ arguments further in our analysis of the claims.

D. Authenticating

Claim limitation 1.5(d) recites “authenticating the telephone participant.” Pet. 11–12. The only description of authenticating a telephone participant in the ’997 patent Specification states “VPN Bridge 407 is used to authenticate clients.” Ex. 1001, 6:58–59; PO Sur-reply 13. The ’997 patent does not describe the scope of such authenticating, and does not address how VPN Bridge 407 authenticates a client or the steps performed to authenticate a client.

Patent Owner’s arguments distinguish the claim term “authenticating” from the expression “identifying.” PO Resp. 23. According to Patent

Owner, “[i]dentification refers to the process of providing a unique label or surname to a user, system, or any entity seeking access to a computer system or network” but “[a]uthentication, on the other hand is the process of verifying the claimed identity of an entity.” *Id.* at 23–24. Patent Owner asserts that authentication methods typically use passwords, PINs, security tokens, or other multi-function techniques to check provided credentials against stored records to confirm identity. *Id.* at 24.

Petitioner emphasizes that the District Court claim construction order cited by Patent Owner construes “authenticating” as “verifying the authenticity of” and, in that District Court proceeding, Patent Owner argued no claim construction was necessary. Pet. Reply at 12 (citing Ex. 2002, 15, 32). Petitioner’s arguments, the substance of which we address later in this Decision, appear to agree with Patent Owner that “authenticating” is different from “identifying.” *Id.* We also note that each of independent claims 1, 3, and 11 separately recites the telephone participant providing conferencing ID information and authenticating the participant. Ex. 1001, 11:12–3, 11:17 (claim 1), 11:57–58 (claim 3), 12:57–59 (claim 11). Conference ID information appears to be information that identifies the conference, as opposed to information that identifies the participant. Claim 1, for example, recites that the telephone participant provides the conference ID information, but does not recite what entity carries out “authenticating the telephone participant.” Ex. 1001, 11:13–17, 6:58–60 (disclosing “VPN Bridge 407 is used to authenticate clients.”). As the District Court determined, none of the claims specifies that “authenticating” requires or precludes using the participant’s “ID information” to verify the identity as a means of authenticating the participant, for example, to determine if the “ID information” is in a list or otherwise provides some means for deciding to

allow the participant into the conference call. *See* Ex. 2002, 16 (“The claims provide no indication, one way or another, as to whether the ‘authenticating’ uses ‘conference ID information,’ some other information, or a combination of the two.”). On the other hand, although the claims do not expressly recite identifying the participant, authenticating the telephone participant arguably includes more than merely identifying the participant.

In any case, we determine that even if “authenticating” requires verifying the identity of an entity (in this case the identity of a telephone participant who provided the conference ID information), Petitioner shows that the prior art meets this claim construction. We also determine that claim 1, 3, and 11 do not limit the authenticating to be performed by any particular system element and are not limited to any particular method of authenticating the telephone participant.

VII. ANALYSIS

A. *Legal Standards*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). 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 burden of proof in *inter partes* review).

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 ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); *see also In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the “interrelated teachings of multiple patents”; “any need or problem known in the field of endeavor at the time of invention and addressed by the patent”; and the background knowledge, creativity, and common sense of the person of ordinary skill.

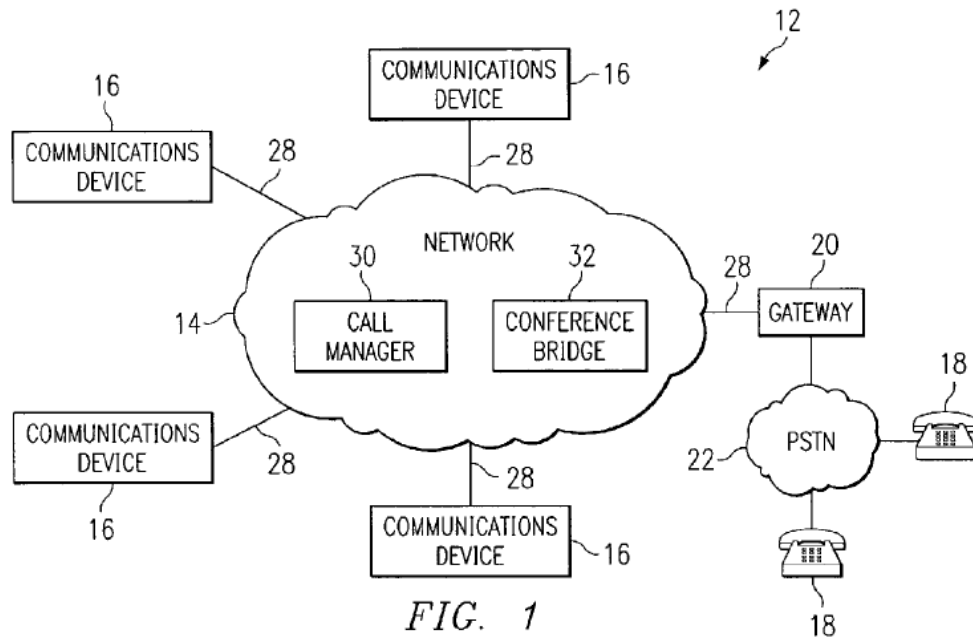
Perfect Web Techs., Inc. v. InfoUSA, Inc., 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–21 (2007)).

In determining whether a claim is obvious in light of the prior art, when in evidence, we consider any relevant objective evidence of non-obviousness. *See Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). At this stage of the proceeding Patent Owner does not present evidence of such objective considerations

We analyze the asserted grounds of unpatentability in accordance with these principles to determine whether Petitioner has met its burden to establish a reasonable likelihood of success at trial.

B. Knappe (Ex. 1006)

Figure 1 of Knappe, reproduced below, shows a multi-party distributed communication system for transmitting audio, voice, data and other suitable real-time and/or non-real-time traffic. Ex. 1006, 3:24–29.

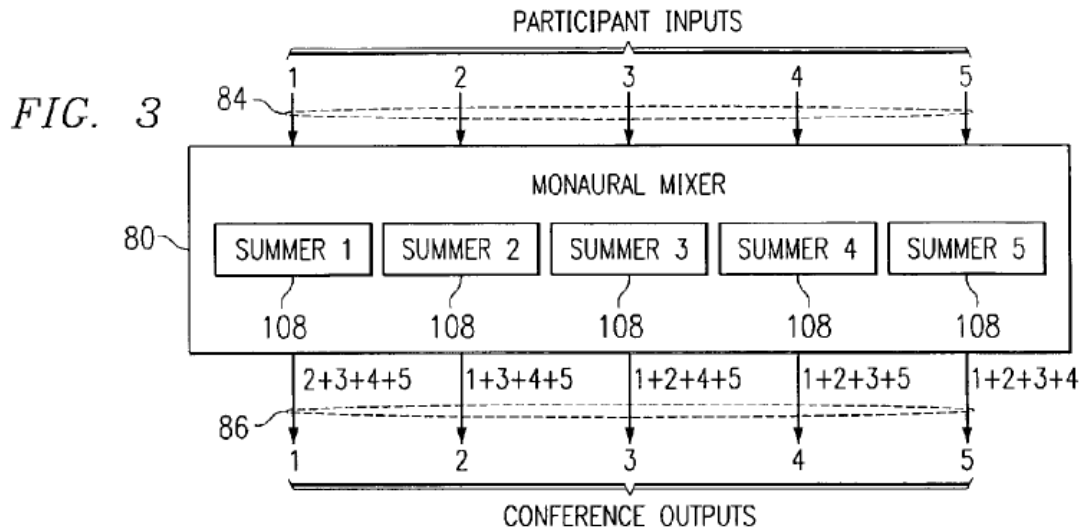


Id. Fig. 1. In communication system 12 of Knappe's Figure 1, network 14 connects a plurality of communication devices 16 (e.g., digital phones, personal computers,) to each other and to standard analog telephones 18 through gateway 20 and PSTN 22 through any suitable wireline or wireless links 28 (e.g., twisted pair, cable, fiber optic, infrared, or microwave links). *Id.* at 3:41–49, 3:62–65. Network 14 is a suitable packet switched network (e.g., the Internet, a wide area network, a local area network) using appropriate protocols and formats. *Id.* at 3:50–61. In the Internet embodiment, network 14 transmits information in Internet Protocol (IP) packets; telephone voice information is transmitted using VoIP, e.g., with real-time transport protocol (RTP packets). *See id.* at 3:50–67. Communication devices 16 include applications and codecs that convert audio, video, or other suitable signals from analog to digital form to be encapsulated into IP or other suitable packets for transmission over network 14. *Id.* at 4:5–17. Gateway 20 converts between analog and/or digital formats, converting standard telephony signals received through PSTN 22

e.g., to and from VoIP format, and translating between the network call control system and Signaling System 7 protocol used in PSTN 22. *Id.* at 4:18–28. Call manager 30 manages call network 14 and is responsive to service requests from communication devices 16 and standard telephones 18 through gateway 20. *Id.* at 4:29–50. Call manager 30 provides voicemail, bridging, multicasting, call hold, conference call, and other multiparty communications. *Id.* at 4:51–57. Conference bridge 32 provides conference call and suitable audio, video, and/or real-time multiparty communication sessions between communication devices by receiving media from participating devices and, using suitable signal processing techniques, mixing it to provide conference signals. *Id.* at 4:58–5:2.

Call manager 30 responds to a call initiation request from a communication device 16 or, through gateway 20 from a telephone device 18, by transmitting a ring signal to a destination device that can accept the call; when the call is answered, call manager 30 begins media streaming. *Id.* at 5:9–26. For conference calls, call manager 30 identifies the participants based on the called number and controls conference bridge 32 to set up, process and tear down conference calls. *Id.* at 5:27–31. Conference bridge 32 connects participants so that each participant receives a conference output stream that includes media of all other participants as required by the multiparty session. *Id.* at 5:31–39. Mixer 58 in conference bridge 32 includes a plurality of summer other suitable signal processing resources that sum, or otherwise combine a plurality of input streams into conference call output streams for transmission to corresponding participants. *Id.* at 6:32–42.

Figure 3 of Knappe, reproduced below, illustrates components and operation of a monaural mixer embodiment. Ex. 1006, 6:51–58.



Id. Fig. 3. In Figure 3, mixer 80 receives participant input streams 84 from participants 1–5 and summers 108 sum the received input streams to route the summed signal to the corresponding participant. *Id.* at 6:65–67. For example, summer 1 receives audio from participants 2–5 and routes the summed output to participant 1; summer 2 receives the input from participants 1, and 3–5 and routes the summed output to participant 2. *Id.* at 7:1–11. The priority of a participant may be set (e.g., the moderator may have the highest priority) or adjusted, based on parameters, such as phone numbers, employee number, IP address, names, titles, etc., such that the audio from higher priority participants over-rides that of lower priority participants. *Id.* at 7:1–56.

C. Elliott (Ex. 1007)

Elliott concerns multi-media collaboration services that allow two or more parties to exchange information in a conference setting. Ex. 1007, 1:41–42. Figure 1 of Elliott is reproduced below:

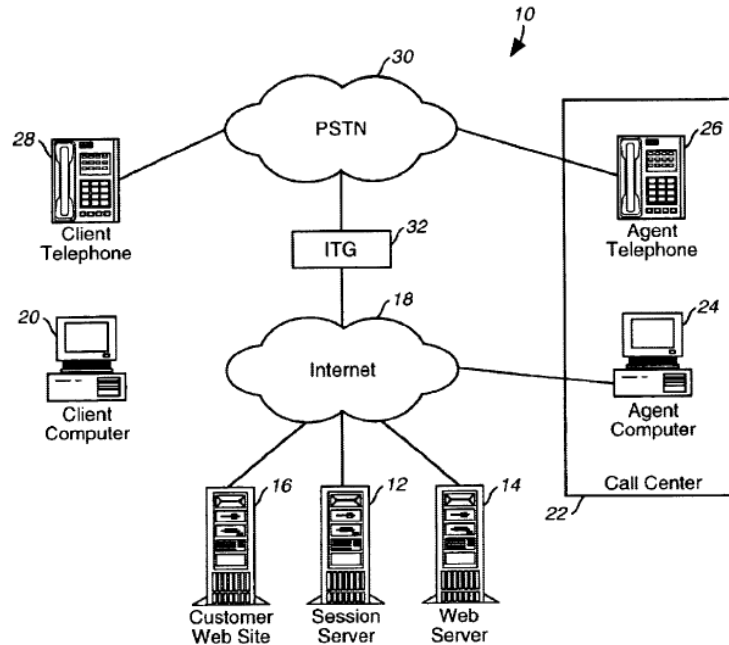


FIG. 1

Id. Fig. 1. Figure 1 of Elliott illustrates network architecture 10 in which shared network resources, e.g., session server 12, web server 14, and web site 16, provide services for a plurality of parties. *Id.* at 3:57–63. Network 18 can be an IP-based network or an intranet that is or is not connected to the network, e.g., a public or carrier supported VPN or a local area network (LAN) which uses IP or IP-tunneling. *Id.* at 4:6–34. Client computer 20 can be connected to network 18 via an analog, digital or cable modem, a T-1 line, or any other suitable subscriber line, and may itself be connected to a corporate intranet that includes a gateway to the Internet. *Id.* at 5:25–33. Session server 12 may be a conference server following the ITU T.120 standard that provides application protocols and services to support real-time multi-point data communications. *Id.* at 5:49–54. Preferably, session server 12 is able to set up to conduct video conferences, audio conferences and data conferences with application sharing and collaborative web browsing with URL push technology. *Id.* at 5:54–61. In operation, a client computer 20

accesses web server 14 that causes a program, e.g., a Java applet, to run on client computer 20, causing the computer to initiate a session with session server 12. *See id.* at 6:12–45. Once a session is established, multimedia collaboration is enabled. *Id.* at 6:46–47.

D. VPN Textbook (Ex. 1010)

The VPN textbook describes VPN topologies, the most common being the hub-and-spoke topology, also referred to as a “star” topology. Pet. 20–21 (citing Ex. 1010, 129–130; Ex. 1003, Houh Decl. ¶ 112).

E. De Moraes (Ex. 1022)

De Moraes relates to IP multicasting. *See generally* Ex. 1022. IP multicasting is the transmission of an IP datagram to a set of hosts identified by a single IP address, i.e., a host group. Ex. 1030,⁷ 1. A host transmits an IP multicast datagram as a local network multicast to all immediately neighboring members of the destination host group; if the datagram has a time-to-live greater than 1, multicast routers attached to the local network are responsible for forwarding the datagram toward other networks that have members of the destination group. *Id.*

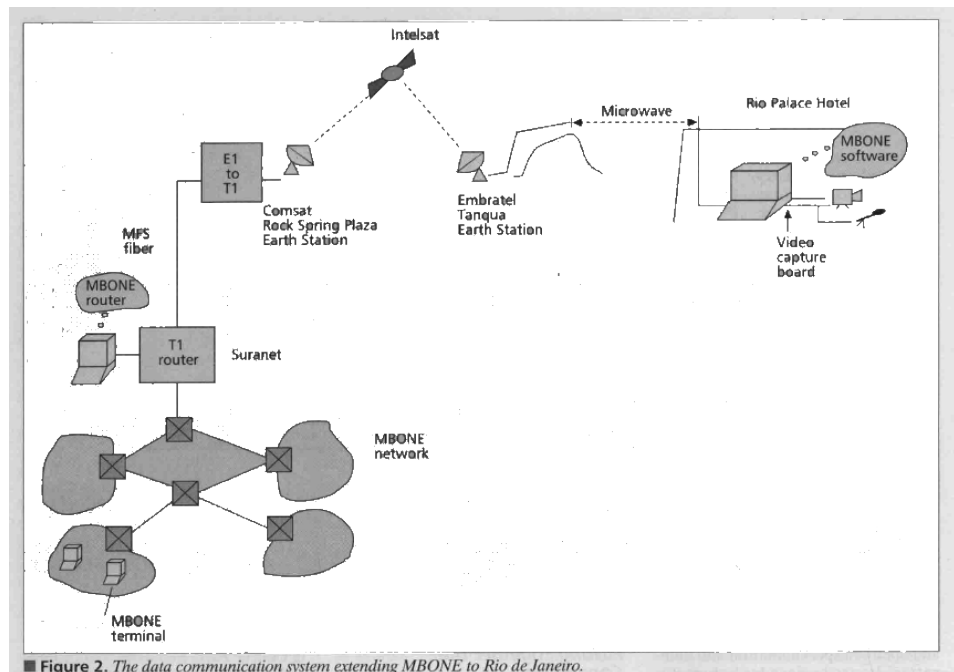
De Moraes discloses multicast backbones (MBONES) that enable unicast connections between multicast routers. Pet. 21–22. De Moraes describes MBONE as a virtual network layered on portions of the existing Internet, stating that MBONE is composed of islands, e.g., multicast LANs like Ethernet, joined by virtual point-to point links called “tunnels.” Ex. 1022, 6.⁸ The end-points are workstation with operating systems that

⁷ Network Working Group Request for Comments 1112 (“RFC 1112”). RFC 1112 is the IP multicast addressing standard.

⁸ Consistent with the Petition, we refer to the page number of the article, as published, not the page number of Exhibit 1022.

support IP multicasting and have software, e.g., audio coding and compression software, to use RTP for transmission of audio, video, and whiteboard media. *Id.* Multicast packets are encapsulated for transmission through tunnels, so that they look like normal unicast packets to intervening routers and subnets. *Id.*

Figure 2 of De Moraes (with its background fill modified to enhance readability) is shown below.



Id. at 8. Figure 2 of de Moraes illustrates the elements of a demonstration project in which a microwave link carried digital compressed audio/video signal from a conference room in the Rio Palace hotel in Rio de Janeiro, shown on the upper right portion of the Figure, to an Internet access provider in College Park, Maryland (Suranet) shown on the left of the Figure. *Id.* at 7–8. Workstations functioned as Internet hosts and media processors at the two ends. *Id.* The workstation at College Park also served as a MBONE multicast router. *Id.* About sixty listeners signed in to the conference. *Id.*

F. Reasons to Combine the Teachings of the Knappe, Elliott, and VPN Textbook

1. Introduction

Petitioner contends that a person of ordinary skill would have had reason to combine the teachings of Knappe and Elliott (Pet. 23–30), Knappe and VPN Textbook (*id.* at 31–33), and Knappe and de Moreas (*id.* at 33–35). The Patent Owner Response does not explicitly dispute Petitioner’s contentions that a person of ordinary skill would have had reason to combine the teaching of the references. Patent Owner instead argues that “Petitioners’ proposed grounds of unpatentability fail because they utilize combinations of references that do not disclose or suggest each and every limitation as recited by the ’997 Patent claims.” PO Resp. 31. Nevertheless, Patent Owner’s offers the testimony of Mr. Thomas Dye concerning motivation to combine the teachings of Knappe, Elliott, and the VPN Textbook. Ex. 2001 ¶¶ 18–26.

We begin by addressing arguments concerning whether an ordinarily skilled artisan would have had reason to combine the teachings of the references.

2. Knappe and Elliott

Petitioner contends that, because Knappe and Elliott both pertain to the same primary field of multiparty conferencing and support computer and PSTN conference participants, Knappe and Elliott are analogous art. Pet 24 (citing, e.g., Ex. 1006, (code 57), 3:26–29, 3:41–49; Ex. 1007, (code 57), 5:35–39, Fig. 1; Ex. 1003, Houh Decl. ¶ 115). Petitioner further notes that Knappe and Elliott discuss sharing data during a conference call to facilitate collaboration among conference participants. *Id.* (citing Ex. 1006, 3:26–29; Ex. 1007, 1:43–44; Ex. 1003, Houh Decl. ¶ 116). In view of the similarity

of the systems disclosed by Knappe and Elliott, the existence of standards for collaborative Web browsing (including for sharing collaborative information during video and audio conferring), and the conventional nature of VPN tunneling, Petitioner asserts that an ordinarily skilled artisan would have had a reasonable expectation of successfully combining the teachings of Knappe and Elliott to enhance the conferencing experience and secure communications among multiple sites using a VPN. *Id.* at 25–30 (citing Ex. 1003, Houh Decl. ¶¶ 116–121). Petitioner also states that its proposed combination of Knappe and Elliott permits, but does not require, physical incorporation of elements from Knappe and Elliott. *Id.* at 30.

Mr. Dye testifies that Elliott discloses a system for multiple remote parties separated by a network to communicate, and Knappe teaches facilitating conferencing between communication devices via a network. Ex. 2001, Dye Decl. ¶ 18. Mr. Dye does not explain the distinction between communication between parties separated by a network and devices that communicate via a network. *Id.* Mr. Dye characterizes Elliott as disclosing two independent one-to-one calls, where data is transmitted to a call center and not transmitted to any third user/participant. Mr. Dye characterizes Knappe as concerning a conference call configuration with numerous participants connected to a unified call-in which data from the participants are combined and relayed to all participants. *Id.* ¶ 19. Referring to this a “fundamental difference,” Mr. Dye asserts that a person of ordinary skill would not have had reason to combine the teachings of Elliott and Knappe. *Id.* Mr. Dye does not cite to any specific portions of Knappe or Elliott. *Id.* ¶¶ 18–19.

Mr. Dye’s attempt to distinguish Knappe as teaching conferencing between devices via a network from Elliott as disclosing independent one-

to-one calls is undermined by Elliott’s disclosure that “[t]he preferred embodiment is a network-based solution and uses shared resources (e.g., a session server and a web server) for multiple customers.” Ex. 1007, 2:3–13. In addition to finding that Knappe and Elliott both address multiparty conferencing and disclose similar systems, as discussed above, we also find that Petitioner has demonstrated an ordinarily skilled artisan would have had reason to combine the teachings of Knappe and Elliott. In particular, we find that a person of ordinary skill would have had reason to use Elliott’s VPN tunneling approaches to improve the security with minimal cost of systems taught by Knappe.

3. *Knappe and VPN Textbook*

Petitioner contends that, when implementing a conferencing system with VPN tunneling, as in Knappe and Elliott, an ordinarily skilled artisan would have had reason to consider known, predictable, VPN tunneling implementations and topologies, e.g., the hub-and-spoke topology found in the VPN Textbook. Pet. 31–32 (citing, e.g., Ex. 1003, Houh Decl. ¶¶ 115–120, 123–124; Ex. 1007, 2:66–3:1, 4:29–34, 6:53–54). Petitioner’s argument is persuasive. As Petitioner notes, an ordinarily skilled artisan would have known the hub-and-spoke topology had been applied in conference bridges and video-conferencing. *Id.* at 32–33 (citing Ex. 1003, Houh Decl. ¶¶ 85–86, 111–112, 126; Ex. 1019,⁹ 4:23–27, 6:36–41; Ex. 1023,¹⁰ ¶¶ 1411–1412, 1451–1453).

Mr. Dye acknowledges that VPN Textbook “involves general teachings of implementing secure network technologies,” but states that “it

⁹ U.S. Patent No. 6,782,413.

¹⁰ U.S. Patent Publication No. 2004/0261116 A1.

does not disclose specifics related to the patented invention.” Ex. 2001 ¶ 17. Neither Patent Owner nor Mr. Dye explicitly dispute Petitioner’s contentions concerning motivation to combine the teachings of VPN Textbook with those of Knappe. We determine that Petitioner has demonstrated a POSITA would have had reason to combine the teachings of Knappe and VPN Textbook.

4. *Knappe and de Moraes*

Petitioner asserts that a person of ordinary skill in the art would have been motivated to combine the teachings of Knappe’s multicast capable multiparty communications system with de Moraes’s teachings to obtain the obvious, beneficial, and predictable results of transmitting data to multicast appliances, e.g., routers, using multicast packets over unicast connections. Pet. 33–34 (citing Ex. 1003, Houh Decl. ¶¶ 128–129; Ex. 1006, 3:50–61, 4:51–54; Ex. 1022, 6). Petitioner cites the demonstration system documented in de Moraes as evidence a person of ordinary skill would have had a reasonable expectation of success in combining Knappe and de Moraes. *Id.* at 34 (citing Ex. 1022, 7–8). Neither Patent Owner nor Mr. Dye explicitly dispute Petitioner’s contentions.

In view of Petitioner’s citation of the demonstration system discussed de Moraes, we determine that Petitioner has demonstrated a person of ordinary skill would have reason to combine the techniques described in de Moraes with the teachings of Knappe to facilitate audio/video conferencing. Ex. 1022, 7.

G. Petitioner's Challenge to Claims 1 and 3–7 as Obvious Over Knappe, Elliott, VPN Textbook, and de Moraes

1. Summary of Claim 1

Claim 1 is drawn to a method for adding a telephone participant to a multi-participant audio-video conference. Ex. 1001, 10:64–65. Claim limitations 1.1–1.2 recite that a plurality of the multicast appliances receive over the Internet a message that includes a group address identifying a plurality of conference participants. *Id.* at 10:66–11:4; Pet. 37, 39. Limitation 1.3 recites establishing a plurality of VPNs across the Internet routes between the multicast appliances. *Id.* at 11:5–6; Pet. 41. Limitation 1.4 recites enabling a participant to communicate in the conference, but does not include any further limitations. *See* Pet. 43; Ex. 1001, 10:64–11:8.

Claim limitation 1.5 recites that the telephone participant joins the audio-video conference, in accordance with several sub-steps (limitations 1.5a–1.5e). *See* Pet. 43–49. The telephone participant first calls into a gateway server and provides conference ID information (limitations 1.5a–1.5b)). Pet. 44–45. Limitation 1.5 (c) recites that the gateway server establishes communications with a conference server. *Id.* at 45. Limitations 1.5d and 1.5e recite authenticating the telephone recipient and transmitting the multicast group information to the gateway server, but do not recite where the authentication takes place. *Id.* at 48.

Limitation 1.6 recites that the gateway server is operable to use the multicast group information to enable the telephone participant to participate in the conference, but does not include any other limitations as to how the gateway server accomplishes that function. *Id.* at 49.

2. *Claim 1 Analysis*

a) *Element 1.P*

The preamble of claim 1 recites “[a] method for adding telephone participants to a multi-participant audio-video conference.” Pet. 35; Ex. 1001, 10:64–65. Petitioner cites Knappe as disclosing a system that can support multiple participants in an audio/video conference call by connecting communication devices 16 to each other and to standard analog telephones 18 through gateway 20 and PSTN 22. Pet. 35–36 (citing Ex. 1006, Fig. 1; Ex. 1003, Houh Decl. ¶ 131). Petitioner further cites Elliott as disclosing more than one media stream used in collaboration with more than one party over telephony, multi-party conferencing, and virtual private networks. *Id.* at 36 (citing Ex. 1007, Fig. 1; Ex. 1003, Houh Decl. ¶ 132). Patent Owner does not respond to Petitioner’s assertions concerning the preamble of claim 1.

Having considered all the arguments and evidence of record, we determine that Petitioner has demonstrated Knappe and Elliott each disclose the subject matter in the preamble of claim 1.

b) *Limitations 1.1–1.2*

Petitioner designates as claim limitation 1.1 the recitation “sending a first message to each of a plurality of multicast appliances over the Internet, wherein the first message comprises a group address which identifies a plurality of participants.” Pet. 37. Petitioner cites the combined teachings of Knappe and de Moraes as disclosing or suggesting claim limitation 1.1. *Id.* at 37–38.

Petitioner cites Knappe as disclosing that for each call, conference parameters 62 include an identification of participants 64 and priority parameters 66 assigned to each participant. *Id.* (citing Ex. 1006, 6:43–51).

Petitioner cites Knappe Figure 1 as showing a system capable of sending messages to each of a plurality of multicast appliances, e.g., communication devices 16, over the Internet with call manager 30 identifying participants based on the called number or other suitable criteria. *Id.* at 38 (citing Ex. 5:27–29).

Petitioner cites de Moraes as describing IP multicast addressing using Internet standard RFC 1112. *Id.* (citing Ex. 1022, 7; Ex. 1003, Houh Decl. ¶ 135). Noting that RFC 1112 explains IP multicasting is the transmission of an IP datagram to a host group, Petitioner contends that an ordinarily skilled artisan would have understood that using the RFC 1112 standard in an MBONE network, as disclosed by de Moraes, would enable a host to send messages to a plurality of multicast appliances, e.g., routers, with such messages including a group address that identifies a plurality of participants, as recited in claim limitation 1.1. *Id.* (citing Ex. 1003, Houh Decl. ¶ 135; Ex. 1030, 1, 11–16).

As to limitation 1.2, i.e., “each of the multicast appliances receiving the first message,” Petitioner argues that the claimed first message refers to “a group address which identifies a plurality of participants.” *Id.* at 39. Petitioner cites Knappe’s disclosure of a multiparty communication session in which three or more parties exchange audio and/or other suitable information and notes that Knappe’s conference bridge 32 is configured to send each communication device 16 conference parameters 62 that include an identification of participants 64 for each conference call. *Id.* at 39–40 (citing Ex. 1006, 4:58–5:1, 6:54–61; Ex. 1003, Houh Decl. ¶ 137).

Petitioner contends that a person of ordinary skill would have known that each communication device 16 can be a multicast appliance capable of receiving the first message. *Id.* at 40 (citing Ex. 1003, Houh Decl. ¶ 137).

According to Petitioner, an ordinarily skilled artisan would have understood that communication devices 16 could be implemented as de Moraes endpoints with operating system support for IP multicast capable of receiving multicast packets encapsulated for transmission through tunnels. *Id.* (citing Ex. 1022, 6; Ex. 1003, Houh Decl. ¶ 137).

Patent Owner argues that Knappe is directed to improving the quality of a moderator's audio communications by suppressing or blocking other users in a network, but does not disclose or suggest any form of secured communication, such as VPN tunneling. PO Resp. 8–10, 17. As to limitations 1.1 and 1.2, Patent Owner recognizes Knappe discloses identification of individual participants, but argues that Knappe uses a called number or other unspecified criteria to accomplish this function. PO Resp. 17; PO Sur-reply 5. According to Patent Owner, in Knappe each participant receives a different message that is sent unicast (not multicast) because each participant has a different identification. *Id.*

Patent Owner acknowledges that de Moraes “discloses a very simple method of conducting an audio and image sharing using multicast addressing defined in RFC 1112,” but argues that de Moraes “does not disclose the nature or content of any message.” *Id.* at 17–18 (citing Ex. 1001, 4:20–36, describing transmission of a group address that identifies participants, establishing a plurality of VPNs between the multicast participants enabling participants to join the multi-participant conference, with telephone participants being joined when a first participant establishes a phone number with a VoIP server, which communicates with a gateway to call the telephone participant). According to Patent Owner, “[n]either Knappe nor de Moraes teaches the claimed messaging identifying the group

participants. Nor does the combination disclose adding a telephone participant using a group address.” *Id.* at 18.

Petitioner cites Knappe for its disclosure of a multi-party conferencing system that can send messages, e.g., priority messages to prevent interference with a moderator, to a plurality of multicast appliances over the Internet in which a call manager identifies participants based on suitable criteria. Pet. Reply 5. Petitioner cites de Moraes for its disclosure of a system that uses multicast routers applying the RFC 1112 standard. Pet. Reply 5–6. As Petitioner points out, an ordinarily skilled artisan would have understood that the RFC 1112 standard discloses the use of a host group address that identifies the host group of recipients in a multicast message. *Id.* at 6 (citing Ex. 1130). Petitioner further cites de Moraes as disclosing IP multicast addressing, in which communication devices, e.g., MBONE routers, transmit and receive message using a group address. Pet. 38; Pet. Reply 5–6.

We agree with Petitioner that Patent Owner’s analysis does not recognize the combined teachings of Knappe and deMoraes. Pet. Reply 5–6. The nature of Knappe’s messages as priority messages that suppress interference with a speaking participant, such as the moderator, is not the relevant subject matter. Petitioner cites Knappe as disclosing sending messages to a group of conference participants over the Internet and de Moraes as disclosing sending such messages to the group of participants using a host group address that identifies the participants in conformance with RFC 1112.

Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated an ordinarily skilled artisan would have had reason to combine the teachings of Knappe, and de Moraes

and that in combination these references would have taught claim limitations 1.1 and 1.2 to a person of ordinary skill in the art.

c) Limitation 1.3

Petitioner identifies the recitation “establishing a plurality of virtual private networks across the Internet routes between the multicast appliances,” as claim limitation 1.3. Pet. 41. Petitioner asserts that the combined teachings of Knapp, Elliott, and the VPN Textbook disclose claim limitation 1.3. *Id.*

Petitioner cites Knappe as disclosing multicast appliances connected through network 14, e.g., the Internet, in a multi-party conferencing system. *Id.* (citing Ex. 1006, 3:54 (disclosing network 14 transmits information in IP packets); Ex. 1003, Houh Decl. ¶ 138). Petitioner cites Elliott as disclosing the multi-party conferencing system, e.g., Knappe’s network 14 and Elliott’s network 18, can be a public or carrier supported VPN that uses IP or IP-tunneling. *Id.* (citing Ex. 1007, 4:20–34; Ex. 1003, Houh Decl. ¶ 138); Pet. Reply 7. Petitioner cites VPN Textbook as disclosing well known methods of implementing VPNs, including the hub-and-spoke or “star” topology shown in the ’997 patent. *Id.* at 41–43 (citing Ex. 1010, 130, Figs. 7–10; Ex. 1003, Houh Decl. ¶ 139).

Patent Owner contends that, instead of teaching VPN internet routes between multicast appliances, de Moraes teaches away from this claim element by disclosing the use of tunnels without VPNs. PO Resp. 19 (citing Ex. 1022, 6 (as claiming packets that look like normal packets)).

Patent Owner’s arguments do not address Petitioner’s contentions, because Petitioner does not rely on de Moraes as teaching limitation 1.3. Petitioner cites Elliott as teaching a multi-party conferencing system, such as that taught by Knappe, can be implemented using VPNs. Pet. Reply 7. As

Petitioner notes, the Patent Owner Response does not discuss the teaching of Elliott or the VPN Textbook.. Pet. Reply 7.

Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated an ordinarily skilled artisan would have had reason to combine the teachings of Knappe, Elliott, and VPN Textbook and that in combination these references would have taught claim limitation 1.3 to a person of ordinary skill in the art.

d) Limitation 1.4

Petitioner identifies the recitation “enabling at least one of the participants to communicate in the multi-participant video conferences,” as claim limitation 1.4. Pet. 43. Petitioner contends that Knappe’s description of a multi-participant video conferencing system discloses this limitation. *Id.* (citing Ex. 1006, Figs. 1–2, (code 57), 1:8–11, 3:24–40; Ex. 1003, Houh Decl. ¶ 140). As Petitioner notes, Knappe discloses that, during a multiparty communication session, participants are connected and stream media through conference bridge 32. *Id.* (citing Ex. 1006, 5:31–33).

Patent Owner does not explicitly respond to Petitioner’s contentions concerning limitation 1.4. Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated that an ordinarily skilled artisan would have understood that Knappe teaches claim limitation 1.4.

e) Claim Limitation 1.5

Petitioner identifies the recitation “the telephone participant joining the multi-participant video conference,” as claim limitation 1.5. Pet. 43. Petitioner cites Knappe as describing network 14 connecting a plurality of communication devices 16 to each other and to a standard analog telephone 18 through gateway 20 and PSTN 22, wherein gateway 20 converts standard

telephony signals into IP packets and vice versa. *Id.* at 42–43 (citing Ex. 1006, 3:41–49, 4:5–28, Fig. 1; Ex. 1003, Houh Decl. ¶ 141).

Patent Owner does not explicitly respond to Petitioner’s contentions concerning limitation 1.5. Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated that an ordinarily skilled artisan would have understood that Knappe teaches claim limitation 1.5.

(1) Limitation 1.5a

Petitioner identifies the recitation “[wherein said joining comprises] the telephone participant calling into a gateway server” as claim limitation 1.5a. Pet. 44. Petitioner cites Knappe’s disclosure that standard analog telephones 18 communicate telephony signals through PSTN 22 to gateway 20, where the signals are converted to IP packets in the VoIP format. *Id.*

Patent Owner argues that Petitioner has not demonstrated the references teach limitation 1.5a because the terms “gateway” and “gateway server” are not interchangeable. PO Resp. 23. We addressed this issue in our claim construction and determined that the ’997 patent uses these terms interchangeably, as the Specification repeatedly refers to a “gateway” and includes no description of the structure or functions of a “gateway server.” *See* Section VI.C herein. In addition, limitation 1.5a does not recite any particular functions performed by the claimed gateway server or any structure that performs any functions. As Knappe discloses standard analog telephones communicate with gateway 20, where analog telephony signals are converted to IP packets in the VoIP format, we agree with Petitioner that Knappe teaches this limitation.

Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated that an ordinarily skilled artisan would have understood that Knappe teaches claim limitation 1.5a.

(2) *Limitation 1.5b*

Petitioner identifies the recitation “[wherein said joining comprises] the telephone participant providing conference ID information,” as claim limitation 1.5b. Pet. 45. Petitioner cites Elliott’s description of a user logging in to a “session” that provides videoconferencing, audio conferencing, data conferencing and collaborative browsing. *Id.* (citing Ex. 1007, 6:46–64, Figs. 1, 2; Ex. 1003, Houh Decl. ¶ 143). Petitioner states that an ordinarily skilled artisan would have understood telephone participants 18 in Knappe’s system would provide conference ID information, such as Elliott’s session ID. *Id.*

Patent Owner contrasts the operations of the claimed invention to those of Knappe and Elliott, without citing to the ’997 patent or either reference. PO Resp. 22–23. Patent Owner states that “in the claimed configuration, the data secured between local moderator and remote client via VPN is decrypted and shared to the PSTN client.” *Id.* at 22. Patent Owner argues that, in Knappe, “an agent in a call-in center manages interaction with two or more remote parties via a computer program, establishing separate sessions for each party.” *Id.* Patent Owner further argues that Elliott’s session ID “is different for each participant and specific to one-to-one session between the call center and one of the participants, the conference ID is consistent for a multicast video conferencing between multiple uses.” *Id.* Thus, according to Patent Owner “the session ID of Elliott cannot be used to show the conference ID present in the element.” *Id.* at 22–23.

Petitioner argues that the claimed “conference ID information” need not be the same for all participants. Pet. Reply 10. Arguing that Petitioner improperly construes conference ID information, Patent Owner asserts that providing a sequence of point-to-point communications in information does not teach this claim limitation. PO Sur-reply 7–8.

We need not resolve this as a claim construction issue, however, as Petitioner shows that Elliott teaches the claim limitation. Patent Owner does not undermine Petitioner’s showing. For example, noting Elliott’s explanation that “[t]he client tells the agent the Session ID and the agent logs into that same Session,” Petitioner addresses Patent Owner’s contention that Elliott does not disclose multiple participants using the same Session ID to log in to a particular video conference. Pet. Reply 11 (citing Ex. 1007, 8:31–33, 9:25–26, 9:60–10:7).

Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated that an ordinarily skilled artisan would have understood that Elliott and Knappe teach claim limitation 1.5b.

(3) Limitation 1.5c

Petitioner identifies the recitation “[wherein said joining comprises] the gateway server establishing communication with a conferencing server,” as claim limitation 1.5c. Pet. 45. Petitioner contends that an ordinarily skilled artisan would have understood Knappe’s call manager 30 and/or conference bridge 32, alone or together, to be a conferencing server, as claimed. *Id.* at 46 (citing Ex. 1003, Houh Decl. ¶ 144). As evidence a person of ordinary skill would understand these devices to be a conferencing server, Petitioner notes that Knappe’s call manager 30 includes functions such as bridging, multicasting, conference call, and other multiparty communications and conference bridge 32 provides conference call and

other suitable audio, video, and real-time multiparty communication sessions between communication devices 16. *Id.* at 46–47 (citing Ex. 1006, 4:42–66; Ex. 1003, Houh Decl. ¶ 144).

Similarly, Petitioner argues that a person of ordinary skill would have understood Elliott’s Internet telephone gateway (“ITG”) 32 to establish communication with one or both of session server 12 and Web server 14. *Id.* Petitioner notes that Elliott’s session server 12 manages communication sessions among one or more agents and one or more clients and can set up to conduct videoconferences, audio conferences and data conferences with application sharing. *Id.* at 47. Petitioner further notes that Elliott’s Web server 14 provides software for communications with client computer 20. *Id.* at 47–48 (citing Ex. 1007, 5:39–56; Ex. 1003, Houh Decl. ¶ 145).

Patent Owner argues that Petitioner has not demonstrated Knappe and Elliott disclose this limitation because the claimed “gateway server” and the “gateway” described in the references are not interchangeable terms. PO Resp. 23. We addressed this issue in our claim construction and determined that the ’997 patent uses these terms interchangeably, as the Specification repeatedly refers to a “gateway” and includes no description of the structure of functions of a “gateway server.” *See* Section VI.C herein. We agree with Petitioner that an ordinarily skilled artisan would have understood Elliott’s gateway as establishing communication with a conferencing server, as that feature is described in the ’997 Specification. *See*, Ex. 1001, Fig. 4.

Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated that an ordinarily skilled artisan would have understood that Knappe and/or Elliott, alone or in combination, teach or suggest claim limitation 1.5c.

(4) *Limitation 1.5d*

Petitioner identifies the recitation “[wherein said joining comprises] authenticating the telephone participant,” as claim limitation 1.5d. Pet. 48. Petitioner cites Knappe’s disclosure that, for each conference, call conference parameters 62 include the identification of participants 64 and that telephone participants 18 may be identified by a caller ID, phone number, or other suitable identifier. *Id.* (citing Ex. 1006, 6:45–50, 5:12–23; Ex. 1003, Houh Decl. ¶ 147).

Distinguishing between identity and authentication, Patent Owner argues that “authentication “ensures that the person or system trying to access the data or resources is indeed who or what they claim to be.” PO Resp. 24. Patent Owner further argues that Petitioner’s citation to subject matter concerning participant identification fails to teach this authentication limitation because “[i]dentification alone doesn’t guarantee the legitimacy of the person or entity; it merely established a digital or physical identity within the system.” PO Resp. 23; PO Sur-reply (citing Ex. 1001, 6:18-20); *see also* Ex. 1001, 6:60–61 (disclosing that VPN 407 is used to connect local and remote clients together within a secure private network).

Noting Patent Owner’s argument that “the authentication process checks the provided credentials against stored records to confirm identity,” Petitioner argues that Knappe’s disclosure of checking stored conference parameters at the beginning of each call based on an identification of the participant teaches this limitation. Pet. Reply 13 (citing Pet. 48). As an example of such parameters, Petitioner cites Knappe’s stored priorities that are different for each participant and are established automatically by checking a participant’s caller ID, phone number, etc. against records stored in the conference bridge. *Id.* (citing Ex. 1006, 8:62–65, 9:1–5).

We determine that Knappe teaches or at least would have suggested the claimed authentication to an ordinarily skilled artisan. As we discussed in our claim construction analysis, there is a distinction between “identifying” and “authenticating,” but claim 1 does not preclude verifying the identity as part of the authentication purposes. *See* Section VI.D herein. We also noted that this claim limitation is not limited to any particular form of authentication and that the ’997 patent Specification does not describe the scope of such authenticating and does not articulate steps performed in authenticating a client. *Id.*

The Petition cites Knappe as disclosing the conference parameters 62 for each conference call include an identification of participants 64 and that a participant may be a telephone participant 48. Pet. 48 (citing Ex. 1006, 6:45–50; Ex. 1003, Hough Decl. ¶ 147). Knappe’s parameters 62 are included in database 60 of conference bridge 32. Ex. 1006 Fig. 2, 6:42–51. Thus, when a participant connects to a conference, Knappe’s conference bridge 32 confirms the legitimacy of the participant by comparing a caller ID, a phone number, or some other suitable identifier to an entry in the participant database. *Id.*

The additional subject matter Petitioner cites in Knappe illustrates a similar use of the database. Pet. Reply 11–12. Knappe’s comparison of participant identification information against stored priorities concerns operation of the conference, i.e., which participants have priority to speak over other participants, rather than authentication of the caller. Nevertheless, as Knappe discloses comparing caller information against a stored list of parameters, in the context of a VPN connection, we further determine that, in combination, comparing parameters to grant access to a

secure VPN teaches authenticating the participant as claimed, under any construction of authenticating.

We also note that Elliott’s disclosure of an agent logging in to a session server with a business account or name, an agent ID and a password, would have suggested authentication to a person of ordinary skill. Ex. 1007, 7:41–49. Patent Owner identifies a password, such as that disclosed in Elliott, as one means of authenticating the identity of a participant. PO Resp. 24. Elliott’s session server allows the session server to be shared among multiple customers, while providing security that one customer’s agents cannot view the session of another agent, providing independent communication with a number of remote parties. Ex. 1007, 7:46–8:11. In combination, the references teach as much, if not more, than the ’997 patent describes about authenticating the participant.

Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated that an ordinarily skilled artisan would have understood that Knappe and Elliott teach claim limitation 1.5d.

(5) *Limitation 1.5e*

Petitioner identifies the recitation [wherein said joining comprises] “transmitting multicast group information to the gateway server,” as claim limitation 1.5e. Pet. 49. Petitioner cites Knappe and de Moraes in combination as disclosing claim limitation 1.5e. *Id.* Petitioner states that “any or all of Knappe’s communication devices 16 can be multicast appliances connected over a network capable of transmitting multicast group information (e.g., MBONE as described in de Moraes) to other participants in the multi-party conference.” *Id.* (citing Ex. 1003, Houh Decl. ¶¶ 134–139, 148). Petitioner further notes Knappe’s disclosure that media streaming occurs between gateway 20 and the destination device and that gateway 20

transmits media to telephone 18. *Id.* (citing Ex. 1006, 5:23–26; Ex. 1003, Houh Decl. ¶ 148). Based on the combined teachings of Knappe and de Moraes, Petitioner asserts that an ordinarily skilled artisan would have known to combine Knappe and de Moraes to transmit multicast group information to a gateway, e.g., Knappe’s gateway 20, as recited in this claim limitation.

Other than its assertions concerning the claimed “gateway server” and the “gateway” discussed above, Patent Owner does not respond to Petitioner’s contentions concerning this limitation. Having considered the arguments and evidence of record, we determine that Petitioner has demonstrated ordinarily skilled artisan would have understood that in combination Knappe and de Moraes teach or suggest claim limitation 1.5e.

f) Limitation 1.6

Petitioner identifies as claim limitation 1.6 the recitation “wherein the gateway server is operable to use the multicast group information to enable the telephone participant to participate in the multi-participant video conference.” Pet. 49. Petitioner asserts that Knappe and Elliott, each in combination with de Moraes, disclose claim limitation 1.6. *Id.* (citing Ex. 1003, Houh Decl. ¶ 149). Petitioner cites Knappe’s gateway 20 as converting VoIP packets received from network 14 into standard telephony signals for delivery to destination telephone 18 PSTN 22. *Id.* (citing Ex. 1006, 4:18–28). Petitioner asserts that a person of ordinary skill would have known to combine Knappe’s teachings with those of de Moraes to implement Knappe’s gateway server 20 to use multicast group information from destination devices, e.g., multicast appliances, to enable a telephone participant 18 to participate in the multi-participant videoconference. *Id.* at 50 (citing Ex. 1003, Houh Decl. ¶ 149).

Petitioner also cites Elliott's gateway ITG 32 as providing an interface between circuit-switched PSTN 30 and packet switched IP network 18 through which multi-media collaboration, including videoconferencing, is enabled. *Id.* (citing Ex. 1007, 1:41–44, 6:7–10; Ex_1003, Houh Decl. ¶ 150). Petitioner further asserts that an ordinarily skilled artisan would have known to combine Elliott with de Moraes's disclosure of an MBONE with multicast endpoints capable of sharing multicast group information over the Internet to enable a telephone participant to participate in a multi-participant videoconference with such multicast endpoints. *Id.* (citing Ex. 1022, 6–7; Ex. 1003, Houh Decl. ¶ 150).

Patent Owner repeats its gateway server arguments discussed above. PO Resp. 24–25. Patent Owner further asserts that de Moraes teachings are inconsistent with a PSTN network or PSTN telephones. PO Resp. 24. According to Patent Owner, although de Moraes transmits via multicast, even if combined with Knappe, there is no teaching of incorporating PSTN telephones into conference calls. PO Resp. 24–25; PO Sur-reply 10–11 (citing de Moraes as disclosing a participant workstation would have audio coding hardware plus software for compression).

Petitioner argues that Patent Owner focuses on the references individually and does not address the teachings of Elliott's gateway in combination with those of Knappe and de Moraes. Pet. Reply 13–14. Petitioner explains that Knappe teaches PSTN participants join a conference call through a gateway that converts between analog and digital formats and argues that an ordinarily skilled artisan would understand Knappe's gateway would incorporate the hardware and software discussed in de Moraes to facilitate the RFC 1112 multicast group addressing taught by de Moraes. *Id.* at 14. We agree with Petitioner that in combination, these references teach a

system that enables the telephone to participate in a conference as recited in limitation 1.6.

Having reviewed all the arguments and evidence of record, we determine that Petitioner has demonstrated that an ordinarily skilled artisan would have understood that Knappe and Elliott, each in combination with de Moraes, teach or suggest claim limitation 1.6.

g) Summary as to Claim 1

Having considered that arguments and evidence of record, for the reason discussed above, we determine that Petitioner has demonstrated by a preponderance of the evidence that a person of ordinary skill would have had reason to combine the teachings of Knappe, Elliott, VPN Textbook, and de Moraes with a reasonable expectation of success and that their combined teachings would have taught or suggested all the limitations of claim 1 to the ordinarily skilled artisan.

3. Claim 3

a) Limitations 3.P–3.5

Petitioner designates the following limitations of claim 3 as limitations 3.P–3.5:

3.P A method for adding a telephone participant to a multiparticipant audio-video conference comprising:

3.1 sending a first message to each of a plurality of multicast appliances over the Internet, wherein the first message comprises a group address which identifies the participants;

3.2 each of the multicast appliances receiving the first message,

3.3 establishing a plurality of virtual private networks across the Internet routes between the multicast appliances;

3.4 enabling at least one of the participants to communicate in the multi-participant video conferences;

3.5 the telephone participant joining the multi-participant video conference, wherein said joining comprises:

Pet. 51. Petitioner cites its discussion of claim limitations 1.P–1.5 as demonstrating the references teach corresponding limitations 3.P–3.5. *Id.* We agree with Petitioner that the subject matter recited in claim limitations 1.P–1.5 and 3.P–3.5 are similar.

Patent Owner does not respond explicitly to Petitioner’s contentions concerning claim 3. For the same reasons as those discussed above with respect to claim 1, we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, VPN Textbook, and de Moraes would have taught or suggested corresponding limitations 3.P–3.5 to the ordinarily skilled artisan.

(1) Limitation 3.5a

Petitioner designates the recitation “the telephone participant providing conference ID information,” as claim limitation 3.5a. Pet. 51. Petitioner cites its discussion of claim limitation 1.5b as demonstrating the references teach claim limitation 3.5a. *Id.* We agree with Petitioner that the subject matter recited in claim limitations 1.5b and 3.5a is similar. For the same reasons as those discussed above with respect to claim 1, we determine that Petitioner has demonstrated that the combined teachings of Knappe and Elliott would have taught or suggested limitation 3.5a to the ordinarily skilled artisan.

(2) Limitation 3.5b

Petitioner designates the recitation “authenticating the telephone participant,” as claim limitation 3.5b. Pet. 52. Petitioner cites its discussion

of claim limitation 1.5d as demonstrating the references teach claim limitation 3.5b. *Id.* We agree with Petitioner that the subject matter recited in claim limitations 1.5d and 3.5b is similar. For the same reasons as those discussed above with respect to claim 1, we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, and de Moraes would have taught or suggested limitation 3.5b to the ordinarily skilled artisan.

b) Limitation 3.6

Petitioner designates the recitation “the telephone participant participating in the multi-participant video conference comprises,” as claim limitation 3.6. Pet. 52; *see also id.* at n.4. Petitioner cites its discussion of claim limitation 1.5 as demonstrating the references teach claim limitation 3.6. *Id.* We agree with Petitioner that the subject matter recited in claim limitations 1.5 and 3.6 is similar. For the same reasons as those discussed above with respect to claim 1, we determine that Petitioner has demonstrated that Knappe would have taught or suggested limitation 3.6 to the ordinarily skilled artisan

(1) Limitation 3.6a

Petitioner designates the recitation “the telephone participant speaking in the video conference,” as claim limitation 3.6a. Pet. 52. Petitioner cites Knappe as disclosing this limitation. *Id.* Petitioner cites Knappe as disclosing a method in which voice streams are received from telephone participants connected to the videoconference through PSTN 22 and gateway 20. *Id.* (citing Ex. 1006, 9:9–10, Fig. 1; Ex. 1003, Houh Decl. ¶ 161). Petitioner further notes that Knappe states “[i]f the moderator is not speaking, at step 208 the participant voice streams are transmitted to all participants.” *Id.* (citing Ex. 1006, 9:13–15).

Having reviewed the arguments and evidence of record, we determine that Petitioner has demonstrated that Knappe would have taught or suggested claim limitation 3.6a to a person of ordinary skill.

(2) *Limitation 3.6b*

Petitioner designates the recitation “generating digital voice data in response to the telephone participant speaking,” as claim limitation 3.6b. Pet. 53. Petitioner cites Knappe as disclosing claim limitation 3.6b. *Id.* In particular, Petitioner notes that Knappe discloses gateway 20 having a codec and converting standard telephony signals to IP packets in VoIP format. *Id.*

Having reviewed the arguments and evidence of record, we determine that Petitioner has demonstrated that Knappe would have taught or suggested claim limitation 3.6b to a person of ordinary skill.

c) *Summary as to claim 3*

Other than the arguments Patent Owner advanced concerning claim 1, Patent Owner does not respond explicitly to Petitioner’s contentions concerning claim 3. Having reviewed the arguments and evidence of record, we determine that Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of Knappe, Elliott, VPN Textbook, and de Moraes and that their combined teachings would have taught or suggested all the limitations of claim 3 to the ordinarily skilled artisan.

4. *Claim 4*

Claim 4 depends from the method for adding a telephone participant to a multi-participant audio-video conference recited in claim 3 and further recites that “the telephone participant joining the multiparticipant videoconference further comprises [4.1] the telephone participant calling into a gateway server; and [4.2] the gateway server establishing

communication with a conferencing server.” *See* Pet. 53–54. As to claim limitation 4.1, Petitioner cites its discussion of claim limitation 1.5a; as to claim limitation 4.2, Petitioner cites its discussion of claim limitation 1.5c. *Id.* (citing Ex. 1003, Houh Decl. ¶¶ 164–165).

We agree with Petitioner that the subject matter recited in claim limitations 4.1 and 4.2 is similar to the subject matter recited in claim limitations 1.5a and 1.5c, respectively. Patent Owner does not respond explicitly to the arguments Petitioner advanced concerning this claim. Having reviewed the arguments of record, we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, VPN Textbook, and de Moraes would have taught or suggested all the limitations of claim 4 to a person of ordinary skill.

5. *Claim 5*

Claim 5 depends from the method for adding a telephone participant to a multi-participant audio-video conference recited in claim 4 and further recites that “the telephone participant joining the multi-participant video conference further comprises: [5.1] transmitting multicast group information to the gateway server; and [5.2] wherein the gateway server is operable to use the multicast group information to enable the telephone participant to participate in the multi-participant video conference.” Pet. 54. As to claim limitation 5.1, Petitioner cites its discussion of claim limitation 1.5e; as to claim limitation 5.2, Petitioner cites its discussion of claim limitation 1.6. *Id.* (citing Ex. 1003, Houh Decl. ¶ 168).

We agree with Petitioner that the subject matter recited in claim limitations 5.1 and 5.2 is similar to the subject matter recited in claim limitations 1.5e and 1.6, respectively. Patent Owner does not respond explicitly to the arguments Petitioner advanced concerning this claim.

Having reviewed the arguments and evidence of record, we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, VPN Textbook, and de Moraes would have taught or suggested all the limitations of claim 5 to a person of ordinary skill.

6. *Claim 6*

Claim 6 depends from the method for adding a telephone participant to a multi-participant audio-video conference recited in claim 4 and further recites that “the gateway server includes a PSTN gateway server.” Pet. 54. Petitioner cites its discussion of the preamble of claim 1 and limitation 1.5c as evidence that the references teach the limitations recited in claim 6. *Id.* (citing Ex. 1003, Houh Decl. ¶ 169).

We agree with Petitioner that the subject matter recited in the preamble of claim 1 and claim limitation 1.5c is similar to the subject matter recited in claim 6. Patent Owner does not respond explicitly to the arguments Petitioner advanced concerning this claim. Having reviewed the arguments and evidence of record, we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, VPN Textbook, and de Moraes would have disclosed or suggested all the limitations of claim 6 to a person of ordinary skill.

7. *Claim 7*

Claim 7 recites the method for adding a telephone participant to a multi-participant audio-video conference recited in claim 4 and further recites that “the telephone participant participating in the multi-participant video conference further comprises: [7.1] the gateway transforming the digital voice data into IP packets; and [7.2] configuring the IP packet with a group address according to a multicast protocol to create a multicast IP packet.” Pet. 54–55.

Referencing its discussion of claim limitations 1.6 and 3.6b, Petitioner cites Knappe as disclosing claim limitation 7.1. *Id.* at 55. Petitioner notes that Knappe discloses gateway 20 converts standard telephony signals to IP packets in the VoIP format and a codec that converts audio, video and other analog signals into digital encoded data that is encapsulated into IP or other suitable packets for transmission over network 14. *Id.* (citing Ex. 1006, 4:18–26; Ex. 1003, Houh Decl. ¶ 171).

Petitioner cites de Moraes’s disclosure of IP multicast addressing using Internet standard RFC 1112 as teaching claim limitation 7.2. *Id.* (citing Ex. 1022, 7; Ex. 1003, Houh Decl. ¶ 172). According to Petitioner, an ordinarily skilled artisan would have understood that using an Internet standard like RFC 1112 in an MBONE network, as described in de Moraes, would include configuring an IP multicast packet with the group address according to a multicast protocol. *Id.* (citing Ex. 1003, Houh Decl. ¶¶ 72–73, 114, 172; Ex. 1030, 1, 9–16).

Patent Owner contends that de Moraes excludes the PSTN, thereby omitting critical information for understanding the transmission of multicast data within a network incorporating a PSTN infrastructure. PO Resp. 31. According to Patent Owner, de Moraes “does not teach multicast’s potential utility in incorporating PSTN telephones into conference calls.” *Id.*; PO Sur-reply 16 (arguing that de Moraes’ design fails to specify whether the configuration of multicast IP packets occurs at the gateway).

Petitioner argues that by addressing de Moraes in isolation, Patent Owner ignores that Knappe teaches that IP addressing with respect to telephone participants takes place at the gateway. Pet. Reply 15 (citing Pet. 55). Petitioner further cites de Moraes’ teaching that IP addressing at the

gateway can be according to multicasting standard RFC 1112, which includes configuring an IP multicast packet with a group address.

Patent Owner's arguments fail to consider the teachings of Knappe concerning the interface to the PSTN network at the gateway, where PSTN signals are converted to digitized IP packets. Having reviewed the arguments and evidence of record, we determine Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of Knappe, Elliott, VPN Textbook, and de Moraes and that their combined teachings would have taught or suggested all the limitations of claim 7 to the ordinarily skilled artisan.

H. Petitioner's Challenge to Claims 2 and 8–10 as Obvious Over Knappe, Elliott, the VPN Textbook, de Moraes, and Shepherd

1. Shepherd (Ex. 1034)

Shepherd discloses a system that supports delivery and reception of multicast content across a unicast network in which a first device is a destination device and a second device is a multicast enabled router. Ex. 1034, (code 57). The destination device is a host within a computer network that seeks to receive content delivered as multicast packets from a source device. *Id.* at 2:4–8. In order to join a multicast group and receive the associated content, the destination device sends a multicast join message to a local router. *Id.* at 2:8–11. If the attempt to join the multicast group fails, i.e., the route to the source device is not multicast enabled, the destination device sends a unicast request message that includes, as a destination address, an address that is associated with the source and is marked for interception by an intermediate network device, such as a multicast router. *Id.* at 2:12–18. A multicast router on the route to the source can perform similarly, if the next-hop router is not multicast enabled. *Id.* at 2:18–29.

The multicast router that receives the unicast request message receives multicast packages with the source/group address indicated in the unicast request message and delivers the packets to the requesting device as unicast packets compatible with a requested delivery mode, e.g., encapsulated delivery. *Id.* at 16:35–55.

2. *Reasons to Combine*

As a reason an ordinarily skilled artisan would have combined Shepherd’s teachings with those of Knappe, Petitioner cites Shepherd’s disclosure that the ability of a multicast enabled router to deliver multicast content across unicast networks may reduce costs borne by the content provider to deliver content to destination devices. Pet. 60–61 (citing Ex. 1034, 6:6–11, 10:8–12, 15:19–23). Petitioner also notes that delivering Knappe’s video conferencing content over unicast networks would require only combining known methods to achieve the predictable and beneficial cost savings. *Id.* at 61 (citing Ex. 1003, Houh Decl. ¶ 178).

Noting that de Moraes MBONE multicast routers are interconnected with unicast tunnels that use unicast IP address to reach the next router, Petitioner asserts that a person of ordinary skill would have viewed Shepherd’s multicast router to be an exemplary implementation of an MBONE router. *Id.* (citing Ex. 1034, 18:20–28, Figs. 1–3, 5–7; Ex. 1003, Houh Decl. ¶ 179).

Patent Owner does not explicitly state that a person of ordinary skill would not have had reason to combine the teachings of Shepherd with those of Knappe, Elliott, the VPN Textbook, de Moraes. *See* PO Resp. Nevertheless, Patent Owner does argue “Shepherd’s relevance to the realm of videoconferencing or conferencing is notably absent, as it solely focuses on the transmission of multicast packets within a unicast network” and “fails

to address the intricate process of handling data from PSTN telephones, which operate independently of the Internet.” PO Resp. 26. According to Patent Owner “[t]his significant gap in Shepherd’s scope underscores its lack of synergy with Knappe” and “coupled with its disregard for essential aspects like PSTN data handling, diminishes Shepherd’s applicability and motivation to be integrated with Knappe’s framework.” *Id.*; *see also* PO Sur-reply 11–12, 14–15 (arguing that de Moraes’ discussion also fails to encompass PSTN networks or telephones).

Petitioner emphasizes that

[e]ven if Shepherd itself does not deal with videoconferencing and even if neither Shepherd nor de Moraes consider the fact that the source of the data is a PSTN telephone, Patent Owner’s argument does not provide a rebuttal to the actual combination presented in the Petition because those references in combination with Knappe, which Patent Owner ignored, do disclose Limitations 2.3–2.7 of claim 2.

Pet. Reply 17. Emphasizing that the Petition relies on Knappe’s disclosure of a gateway that transforms telephone data into IP network packets, Petitioner argues that Patent Owner fails to discuss the teachings of Knappe, *Id.* at 16.

Patent Owner’s arguments are not supported by evidence or expert testimony, as the Dye Declaration does not discuss Shepherd or any of the arguments advanced in the Patent Owner Response or Patent Owner Sur-reply. *See* Ex. 2001. Dr. Houh’s un rebutted testimony is that an ordinarily skilled artisan would have had reason to combine Knappe’s teachings with those of Shepherd to provide obvious and predictable delivery and receipt of multicast packets in Knappe’s conferencing system over unicast networks. Ex. 1003, Houh Decl. ¶ 178. Dr. Houh states that the MBONE multicast routers in de Moraes are interconnected with unicast IP tunnels that use

unicast IP addresses to get to the next router. *Id.* Dr. Houh explicitly cites Shepherd as disclosing the ability of multi-cast routers to deliver and receive multicast messages over a unicast network. *Id.* ¶175 (citing Ex. 1034; 7:54–55, 9:57–64); *see also* Pet. 57, Ex. 1034, 15:44–48.

For the reasons discussed above, we determine that Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of Shepherd with those of Knappe.

3. *Claim 2*

a) *Limitation 2.P*

Petitioner designates the preamble of claim 2 as element 2.P. Pet. 62. The preamble of claim 2 recites “[t]he method of claim 1, wherein the telephone participant in the multi-participant conference comprises.” *Id.* Petitioner cites its analysis of claim limitations 1.P–1.6 and 3.6 as demonstrating that Knappe, Elliott, VPN Textbook and de Moraes disclose the features of the preamble. *Id.* (citing Ex. 1003, Houh Decl. ¶181). Patent Owner does not respond explicitly to Petitioner’s arguments concerning the preamble of claim 2. For the same reasons as those discussed above with respect to claim 1, we determine that Petitioner has demonstrated the combined teachings of Knappe, Elliott, the VPN Textbook, and de Moraes would have disclosed or suggested preamble 2.P to the ordinarily skilled artisan.

b) *Limitation 2.1*

Petitioner designates as claim limitation 2.1 the recitation “the telephone participant speaking in the video conference.” Pet. 62.

Petitioner cites its discussion of claim limitation 3.6a as evidence that the combined teachings of Knappe, Elliott and de Moraes teach claim limitation 2.1. *Id.* (citing Ex. 1003, Houh Decl. ¶182). Patent Owner does

not respond explicitly to Petitioner's arguments concerning claim limitation

2.1. For the same reasons as those discussed above with respect to limitation 3.6a, we find that Petitioner has demonstrated Knappe would have taught or suggested limitation 2.1 to the ordinarily skilled artisan.

c) Limitation 2.2

Petitioner designates as claim limitation 2.2 the recitation "generating digital voice data in response to the telephone participant speaking." Pet. 62. Petitioner cites its discussion of claim limitation 3.6b as evidence that the combined teachings of Knappe, Elliott and de Moraes teach claim limitation 2.2. *Id.* (citing Ex. 1003, Houh Decl. ¶ 183). Patent Owner does not respond explicitly to Petitioner's arguments concerning claim limitation 2.2. For the same reasons as those discussed above with respect to limitation 3.6b, we determine that Petitioner has demonstrated Knappe would have taught or suggested limitation 2.2 to the ordinarily skilled artisan.

d) Limitation 2.3

Petitioner designates as claim limitation 2.3 the recitation "the gateway transforming the digital voice data into IP packets." Pet. 62. Petitioner cites its discussion of claim limitation 7.1 as evidence that the combined teachings of Knappe, Elliott and de Moraes teach claim limitation 2.3. *Id.* (citing Ex. 1003, Houh Decl. ¶ 182). Patent Owner does not respond explicitly to Petitioner's arguments concerning claim limitation 2.3. For the same reasons as those discussed above with respect to limitation 7.1, we determine that Petitioner has demonstrated the combined teachings of Knappe, Elliott, and de Moraes would have taught or suggested limitation 2.3 to the ordinarily skilled artisan.

e) Limitation 2.4

Petitioner designates as claim limitation 2.4 the recitation “configuring the IP packet with a group address according to a multicast protocol to create a multicast IP packet.” Pet. 62. Petitioner cites its discussion of claim limitation 7.2 as evidence that the combined teachings of Knappe, Elliott and de Moraes teach claim limitation 2.4. *Id.* (citing Ex. 1003, Houh Decl. ¶ 182). Patent Owner does not respond explicitly to Petitioner’s arguments concerning claim limitation 2.4. For the same reasons as those discussed above with respect to limitation 7.2, we determine that Petitioner has demonstrated the combined teachings of Knappe, Elliott, and de Moraes would have taught or suggested limitation 2.4 to the ordinarily skilled artisan.

f) Limitation 2.5

Petitioner designates as claim limitation 2.5 the recitation “encapsulating the multicast IP packet as a unicast packet.” Pet. 62. Petitioner notes that de Moraes discloses multicast routers are connected with IP tunnels and that such IP tunnels are unicast tunnels using IP addresses to get to the next MBONE router. *Id.* (citing Ex. 1022, 6; Ex. 1003, Houh Decl. ¶ 186). Petitioner also notes that IP multicast packets are encapsulated for transmission through tunnels, so that they look like normal unicast packets to intervening routers and subnets. *Id.*; *see also* Ex. 1022, 6. Petitioner cites Shepherd as describing ways such unicast tunnels can be implemented. Pet. 63 (citing Ex. 1034, 18:20–28).

Petitioner cites Shepherd’s disclosure of the steps shown in Figure 5. *Id.* Shepherd discloses that a destination device requesting to receive multicast content sends a multicast join message as an IGMP control packet. Ex. 1034, 16:4–19, *see also* Ex. 1030, 4. If the destination device recognizes

that the route to the source device is not multicast enabled, the destination device sends a unicast message. *See* Ex. 1034, 16:20–36. The unicast request message contains information that will be recognized by a multicast router to receive multicast packets containing the multicast content and deliver the multicast packets to the destination device as unicast packets. *Id.* at 16:35–40. The information includes the group address associated with the multicast content, the address of the source device (which may be the destination address or one or more packets of the unicast request message), the address of the destination device, and a delivery mode indication. *Id.* at 16:35–47. Shepherd discloses one possible delivery mode is “encapsulated delivery,” in which the multicast packets are encapsulated with a header that includes the address of the destination device. *Id.* at 16:53–55.

It is in the context of limitation 2.5 that Patent Owner’s advances its arguments that Shepherd lacks any substantial connection to the videoconferencing domain and does not address essential aspects of PSTN data handling. PO Resp. 26 (arguing that “encapsulating the multicast packet as a unicast packet” cannot be evaluated in isolation). According to Patent Owner, “it is critical to consider the source of data, which, in this case, originates from the PSTN telephone.” *Id.* at 26–27 (arguing “the proposed techniques of encapsulating the multicast IP packet as a unicast packet specifically pertains to PSTN telephones engaged in a conference call which petitioner fails to disclose in Shepherd”).

Shepherd’s techniques are not limited to any particular network application; instead Shepherd is drawn to exploiting the ability of multi-cast enabled router to deliver and receive content across unicast networks, generally. *See* Ex. 1034, 4:1–17, 15:44–48. Petitioner relies on Knappe as disclosing a gateway that converts PSTN signal to digital IP packets that can

be transmitted over the Internet. *See, e.g.*, Section VII.G.2.b herein.

Petitioner cites the combined teachings of Knappe's multicast capable multiparty communications system with de Moraes's teachings to obtain the obvious, beneficial, and predictable results of transmitting data to multicast appliances, e.g., routers, using multicast packets over unicast connections. Pet. 33–34 (citing Ex. 1003, Houh Decl. ¶¶ 128–129; Ex. 1006, 3:50–61, 4:51–54; Ex. 1022, 6). Shepherd explicitly describes one delivery mode of a unicast request message is “encapsulated delivery” in which multicast packets received are encapsulated with a header that includes the address of the destination device. Ex. 1034, 16:35–39, 45–55. As Petitioner points out, Shepherd discloses limitation 2.5 because Shepherd teaches sending, in a unicast request message a multicast router can recognize, an indication of an encapsulated delivery mode in which multicast packets received should be encapsulated with a header that includes the address of the destination device. Pet. 63 (citing Ex. 1034, 16:47–63; Ex. 1003, Houh Decl. ¶ 187).

Having considered the evidence and arguments of record, we determine, based on the above analysis, that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, the VPN Textbook, de Moraes, and Shepherd would have disclosed or suggested limitation 2.5 to an ordinarily skilled artisan.

g) Limitation 2.6

Petitioner designates as claim limitation 2.6 the recitation “transmitting the unicast packet over the virtual private networks across the Internet between one or more appliances.” Pet. 64. Petitioner cites Shepherd's discussion of Figure 3 as demonstrating that network 40 supports delivery and reception of multicast content across a unicast network, e.g., label switched network 42, and “may provide additional advantages, such as

allowing the delivery of multicast content in a virtual private network (VPN) utilizing a label-switched network of a provider of the VPN service.” *Id.* at 65 (citing Ex. 1034, 12:1–4, 15:26–29; Ex. 1003, Houh Decl. ¶ 189); *see also* Ex. 1034, 15:20–36 (“[a] provider of the VPN service to the enterprise may provide access to label-switched network 42 via multicast-enabled routers 16E and 16F that are maintained by the VPN service provider”).

Patent Owner repeats many of its arguments asserting that Shepherd does not disclose conferencing or the handling of PSTN telephone data. PO Resp. 27–28. We addressed these arguments above and found them insufficient to rebut Petitioner’s challenge. *See* Sections VII.H.2, VII.H.3.f. Patent Owner also argues that Shepherd’s disclosure lacks any reference to the use of VPNs for PSTN network and telephones.

As discussed above and, as Patent Owner acknowledges, Shepherd focuses on the transmission of multicast packets within a unicast network. PO Resp. 27. As Petitioner points out, the transmission of IP packets themselves is agnostic as to the content of the packets. Pet. Reply 18. Petitioner relies on Knappe for its disclosure of a gateway that interfaces the PSTN network and PSTN telephones by converting signals on the PSTN network to digital IP packets. *Id.* (citing Pet. 55, 62). Petitioner notes that, once converted to IP packets, digitized PSTN telephone voice can be treated like any other IP packet, e.g., in accordance with Shepherd’s disclosure of using VPN networks to carry conventional unicast packets across the Internet between one or more IP-networked multicast appliances. *Id.*, *see also* Ex. 1034, 12:1–4, 15:26–29 (disclosing that Shepherd supports delivery of multicast content in a VPN utilizing a label switched network of a VPN service provider). For these reasons and having considered all the arguments and evidence of record, we determine that Petitioner has

demonstrated that the combination of the references would have disclosed or suggest limitation 2.6 to an ordinarily skilled artisan.

h) Limitation 2.7

Petitioner designates as claim limitation 2.7 the recitation “one or more of the appliances determining the multicast data from the unicast packet.” Pet. 65. Petitioner cites de Moraes and Shephard as disclosing this limitation. *Id.*

Petitioner notes that de Moraes discloses multicast routers are interconnected with IP tunnels, which are unicast tunnels and use unicast IP addresses to get to the next MBONE router. *Id.* (citing Ex. 1022, 6 (disclosing tunnel end points are workstations with operating systems that support IP multicast and always run the “mrouted” routing daemon in the background)).

Petitioner cites Shepherd as disclosing that a multicast enabled router that sends a unicast message eventually receives a unicast packet from the multicast enabled router the intercepts the unicast request message. *Id.* at 66; Ex. 1034, 18:7–10. Petitioner notes that the multicast enabled router that receives the unicasts packets may remove the encapsulation or labels to expose the multicast packets for the source/group address pair indicated in the unicast request message; this enables that destination device to determine the multicast data from the unicast packet. Pet. 66 (citing Ex. 1034, 18:20–24; Ex. 1003, Houh Decl. ¶ 191). We agree with Petitioner that this feature of Shepherd enables a destination device to determine the multicast data from the unicast packet as claimed. *Id.*

Patent Owner repeats its assertions that Shepherd is not directed to videoconferencing and focuses on the transmission of multicast packets in a unicast network. PO Resp. 29. As to de Moraes, Patent Owner takes a

similar approach, arguing that de Moraes fails to encompass PSTN network or PSTN telephones and omits critical information regarding the transmission of multicast data within a network that incorporates the PSTN infrastructure. *Id.* at 28. As we discussed above, these arguments do not rebut Petitioner’s challenge in which the Knappe provides gateway functions that convert PSTN signals to digital IP packets. Patent Owner also argues that neither Shepherd nor de Moraes teach the determination of multicast data from unicast data performed by communications at the user end, but instead refer to routes positioned somewhere between end user devices for this purpose. *Id.* at 29.

As Petitioner points out, limitation 2.7 recites one or more appliances determine the multicast data from the unicast packet. Pet. Reply 19–20. Petitioner further points out that, even if this feature were to be considered as a limitation 2.7, de Moraes teaches end user workstations that function as MBONE routers that perform this function. *Id.* at 20–21. Patent Owner has not rebutted Petitioner’s challenge because claim limitation 2.7 does not recite the limitation that Patent Owner argues as the basis of its response and because de Moraes teaches the function at end user stations. Having considered all the arguments and evidence of record, we determine that Petitioner has demonstrated the combined teachings of the references would have disclosed or suggested limitation 2.7 to an ordinarily skilled artisan.

i) Limitation 2.8

Petitioner designates as claim limitation 2.8 the recitation “the appliances providing the multicast data to each of the other participants in the group address.” Pet. 67. Petitioner cites de Moraes and Shepherd, individually, and in combination, as disclosing this limitation. *Id.*

Petitioner cites de Moraes as disclosing MBONE multicast routers interconnected with IP tunnels that are unicast tunnels using IP address to get to the next MBONE router and Shepherd as disclosing how to implement such tunnels. *Id.* (citing Ex. 1022, 6; Ex. 1003, Houh Decl. ¶¶ 192–193); *see also* Section VII.H.3.f herein.

In support of its contention that Shepherd teaches this limitation, Petitioner cites Shepherd’s disclosure that the multicast router that sends the unicast request message and receives the unicast packet, may replicate the multicast packets, and if more than one interface is indicated in the multicast forwarding information maintained by the multicast enabled router for the source/group address pair and forward the multicast packets via the indicated interfaces. *Id.* at 68 (citing Ex. 1034, 18:20–28), *see also id.* (disclosing that multicast enabled router 16 “may replicate the received multicast packets, and readdress and deliver, encapsulate and deliver, or forward the replicated packets as indicated by the multicast forwarding information,” where the appliances “received multiple unicast request messages and/or multicast join messages for the same source/group address pair.”).

Patent Owner’s arguments mirror those it raises in response to limitation 2.7 and fail for the same reasons. Based on the above, we determine that Petitioner has demonstrated that de Moraes and Shepherd teach this limitation.

j) Summary as to Claim 2

Having considered all the evidence and arguments of record, we determine that Petitioner has demonstrated by a preponderance of the evidence that a person of ordinary skill would have had reason to combine the teachings of Knappe, Elliott, the VPN Textbook, de Moraes, and

Shepherd and that their combined teachings would have taught or suggested all the limitations of claim 2 to the ordinarily skilled artisan.

4. *Claim 8*

Claim 8 recites “[8.P] [t]he method of adding a telephone participant to a multi-participant audio-video conference of claim 1, wherein the telephone participant participating in the multi-participant video conference further comprises [8.1] encapsulating the multicast IP packet as a unicast packet.”

Petitioner cites its discussion of claim limitations 7.P–7.2 as evidence that the combined teachings of Knappe, Elliott and de Moraes teach the preamble of claim 8 and its discussion of limitation 2.5 as evidence that the further combination with Shepherd teaches limitation 8.1. Pet. 69 (citing Ex. 1003, Houh Decl. ¶¶ 191–192). Patent Owner does not explicitly respond to Petitioner’s arguments concerning the limitations recited in claim 8.

For the same reasons as those discussed above with respect to limitation 7.1, 7.2, and 2.5 we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, de Moraes, the VPN Textbook, and Shepherd would have taught or suggested the limitations of claim 8 to the ordinarily skilled artisan.

5. *Claim 9*

Claim 9 depends from claim 8 and further recites “transmitting the unicast packet over the virtual private networks across the Internet between one or more appliances.”

Petitioner cites its discussion of claim limitations 8.P–8.1, and 2.6 as evidence that the combined teachings of Knappe, Elliott, de Moraes, and Shepherd teach the imitations of claim 9. Pet. 69 (citing Ex. 1003, Houh

Decl. ¶ 193). Patent Owner does not explicitly respond to Petitioner's arguments concerning the limitations recited in claim 9.

For the same reasons as those discussed above with respect to limitation 8.P–8.1 and 2.6 we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, de Moraes, the VPN Textbook, and Shepherd would have taught or suggested the limitations of claim 9 to the ordinarily skilled artisan.

6. *Claim 10*

Claim 10 depends from claim 9 and further recites “[10.1] one or more of the appliances determining the multicast data from the unicast packet; and [10.2] the appliances providing the multicast data to each of the other participants in the group address.” Petitioner cites its discussion of limitations 2.7 and 2.8 as evidence that the combined teachings of Knappe, Elliott, de Moraes, and Shepherd teach the imitations of claim 10. Pet. 69–70 (citing Ex. 1003, Houh Decl. ¶¶ 195–196). Patent Owner does not explicitly respond to Petitioner's arguments concerning the limitations recited in claim 10.

For the same reasons as those discussed above with respect to claim 9 and limitations 2.7 and 2.8, we determine that Petitioner has demonstrated that the combined teachings of Knappe, Elliott, de Moraes, the VPN Textbook, and Shepherd would have disclosed or suggested the limitations of claim 10 to the ordinarily skilled artisan.

VIII. CONCLUSION¹¹

Having reviewed all the arguments and evidence of record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 3–7 are unpatentable as obvious over Knappe, Elliott, VPN Textbook, and de Moraes and that claims 2 and 8–10 are unpatentable as obvious over Knappe, Elliott, the VPN Textbook, de Moraes, and Shepherd

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 3–7	103	Knappe, Elliott, VPN Textbook, de Moraes	1, 3–7	
2, 8–10	103	Knappe, Elliott, VPN Textbook, de Moraes, Shepherd	2, 8–10	
Overall Outcome			1–10	

¹¹ 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).

IX. ORDER

In consideration of the above it is:

ORDERED that claim 1–10 are unpatentable; and

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

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