

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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YMAX CORPORATION,

Petitioner

v.

FOCAL IP, LLC,

Patent Owner

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Case IPR2016-01260  
Patent Number: 8,457,113 B2

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NOTICE OF APPEAL TO THE FEDERAL CIRCUIT (35 U.S.C. § 141(c))

To: Office of the General Counsel  
U.S. Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Patent Owner hereby provides notice of appeal to the United States Court of Appeals for the Federal Circuit under 35 U.S.C. §§ 141 and 142 from the Final Written Decision of the Patent Trial and Appeal Board entered December 27, 2017, (Paper No. 60).

Pursuant to 37 C.F.R. § 90.2(a)(3)(ii) the expected issues on appeal will include:

1. Whether Petitioner has shown by a preponderance of the evidence that claims 1, 2, 8, 11, and 15–19, of U.S. Patent No. 8,457,113 B2 are unpatentable as discussed in the Final Written Decision.

2. Whether the Board’s construction of the disputed terms and phrases at issue was correct, as discussed in the Final Written Decision.

3. Whether Petitioner has shown by a preponderance of the evidence that claims 1, 2, 8, 11, and 15–19, of U.S. Patent No. 8,457,113 B2 are obvious/anticipated in light of the cited prior art references, as discussed in the Final Written Decision.

4. Whether the PTAB misapprehended or overlooked evidence or arguments in its Final Written Decision.

Patent Owner has electronically filed this notice with the Patent Trial and Appeal Board, pursuant to 37 C.F.R. § 90.2(a)(1), 37 C.F.R. § 42.6(b)(1) and Federal Circuit Rule 15(a)(1).

Simultaneously herewith, patent owner is providing the Federal Circuit an electronic copy of the present Notice of Appeal (pursuant to 37 C.F.R. § 90.2(a)(2)(i) and 15(a)(1)) together with a \$500 fee (pursuant to 37 C.F.R. § 90.2(a)(2)(ii) and Federal Circuit Rule 52(a)(3)(A)). A copy of the Final Written Decision is also included.

Dated: February 28, 2018

Respectfully Submitted,

/s/ Brent N. Bumgardner  
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that, in addition to being filed electronically through the Patent Trial and Appeal Board End to End (PTAB E2E), this Notice of Appeal was filed with the Director of the United States Patent and Trademark Office, at the following address:

Office of the General Counsel  
U.S. Patent and Trademark Office  
Alexandria, Virginia 22313-1450

The undersigned also certifies that a true and correct copy of this Notice of Appeal and the required fee were filed electronically via CM/ECF on February 28, 2018, with the Clerk of Court for the United States Court of Appeals for the Federal Circuit.

The undersigned also certifies that a true and correct copy of this Notice of Appeal was served on February 28, 2018 on counsel of record for Petitioner by electronic mail (by agreement of the parties) at the following addresses:

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Case IPR2016-01260  
Patent 8,457,113 B2

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Before SALLY C. MEDLEY, JONI Y. CHANG, and  
BARBARA A. PARVIS, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

### A. *Background*

YMax Corporation (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting that we institute *inter partes* review of claims 1, 2, 8, 11, and 15–19 (“challenged claims”) of U.S. Patent No. 8,457,113 B2 (Ex. 1001, “the ’113 Patent”). In support of its Petition, Petitioner proffers a Declaration of Dr. Tal Lavian, who has been retained by Petitioner as an expert witness for the instant proceeding. Ex. 1002 ¶¶ 2, 3. Focal IP, LLC (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”) and a Declaration of Mr. Regis J. Bates (Ex. 2001), who has been retained by Patent Owner as an expert witness for the instant proceeding. Petitioner additionally filed a Reply to Patent Owner’s Preliminary Response. Paper 9 (“POPR Reply”). Upon consideration of the parties’ contentions and supporting evidence, we instituted an *inter partes* review pursuant to 35 U.S.C. § 314, as to the challenged claims of the ’113 Patent. Paper 12 (“Dec. on Inst.”).

After institution, Patent Owner filed a Patent Owner Response (Paper 26, “PO Resp.”), and a Motion to Amend (Paper 27, “Mot.”). In support of its Patent Owner Response and its Motion to Amend, Patent Owner proffers additional Declarations of Mr. Regis Bates. Ex. 2022 ¶ 1 (supporting Patent Owner’s Response); Ex. 2040 ¶ 2 (supporting Motion to Amend); Ex. 2070 ¶ 2 (supporting Reply to Opposition to Motion to Amend).<sup>1</sup> Petitioner

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<sup>1</sup> Patent Owner also submits declaration and deposition testimony from declarants of other Petitioners in other *inter partes* review proceedings. *See, e.g.*, Exs. 2026–2030. Patent Owner, however, must include a detailed explanation of the significance of the evidence including, for example, why it should be considered in the instant proceeding. 37 C.F.R. §§ 42.22, 42.23, 42.120. To the extent appropriate, we address Patent Owner’s contentions herein.

filed a Reply (Paper 33, “Pet. Reply”) and an Opposition to Patent Owner’s Motion to Amend (Paper 32, “Oppn.”). In support of its Opposition to the Motion to Amend, Petitioner proffers a Declaration of Dr. Leonard J. Forys, who also has been retained by Petitioner as an expert witness for the instant proceeding. Ex. 1045 ¶ 2. Patent Owner filed a Reply to Petitioner’s Opposition to the Motion to Amend (Paper 38, “PO Reply”). Petitioner filed a Motion for Observation, Paper 45 (“Pet. Mot. Obs.”) and Patent Owner filed a Response to the Motion for Observation, Paper 46 (“PO Resp.”). A transcript of the hearing held on September 19, 2017 has been entered into the record as Paper 57 (“Tr.”).<sup>2</sup>

Subsequent to oral hearing, Petitioner was authorized to file a supplemental brief in opposition to Patent Owner’s Motion to Amend in light of the Federal Circuit’s en banc decision in *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (“*Aqua Products*”). Paper 54. On October 31, 2017, Petitioner filed a supplemental brief in opposition to Patent Owner’s Motion to Amend. Paper 56 (“Supp. Br.”).

This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has demonstrated by a preponderance of evidence that the challenged claims of the ’113 Patent are unpatentable. Additionally, we deny Patent Owner’s Motion to Amend.

*B. Related Proceedings*

The parties indicate that the ’113 Patent is involved in *Patent Asset Licensing LLC v. YMAX Corporation*, No. 3:15-cv-00744-J-32MCR (M.D. Fla.), and the parties also identify other related proceedings. Pet. 1–2;

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<sup>2</sup> The oral hearings in the following cases were consolidated: Cases IPR2016-01256, IPR2016-01258, and IPR2016-01260. Paper 47.



IPR2016-01260  
Patent 8,457,113 B2

Paper 4 (Patent Owner’s Mandatory Notices), 2–3. There are other petitions challenging the ’113 Patent (IPR2016-01254, IPR2016-01257, and IPR2016-01261) and two related patents: (1) U.S. Patent No. 7,764,777 B2 (“the ’777 Patent”), which issued from the parent of the ’113 Patent Application; and (2) U.S. Patent No. 8,155,298 B2, which issued from a continuation of the parent of the ’777 Patent Application.

*C. Instituted Grounds of Unpatentability*

We instituted on the following grounds of unpatentability (Dec. on Inst. 32):

Challenged Claims	Basis	Reference(s)
1, 2, 8, 15, 18, and 19	§ 102(b)	International Published Application No. WO 99/14924 (“Shtivelman,” Ex. 1005)
1, 2, 8, 18, and 19	§ 102(e)	U.S. Patent No. 6,463,145 B1 (“O’Neal,” Ex. 1003)
1, 11, and 15–17	§ 103	O’Neal
1, 2, 8, 11, and 15–19	§ 103	Shtivelman and O’Neal

*D. The ’113 Patent*

The ’113 Patent relates to telephone services. Ex. 1001, 1:23. In the background section, the ’113 Patent explains that the Public Switched Telephone Network (PSTN) consists of a plurality of edge switches connected to telephones on one side and to a network of tandem switches on the other. *Id.* at 1:45–47. The tandem switch network allows connectivity

between all of the edge switches, and a signaling system is used by the PSTN to allow calling and to transmit both calling and called party identity. *Id.* at 1:48–51.

According to the '113 Patent, at the time of the invention, there were web-based companies managing third-party call control, via the toll-switch network, which allow users to enter call control information through a web portal. *Id.* at 1:34–37. Edge devices such as phones and PBXs that include voice mail, inter-active voice response, call forwarding, speed calling, etc., have been used to provide additional call control. *Id.* at 2:41–44.

The '113 Patent discloses a system for allowing a subscriber to select telephone service features. *Id.* at 1:23–26. Figure 1 of the '113 Patent is reproduced below (with annotations).

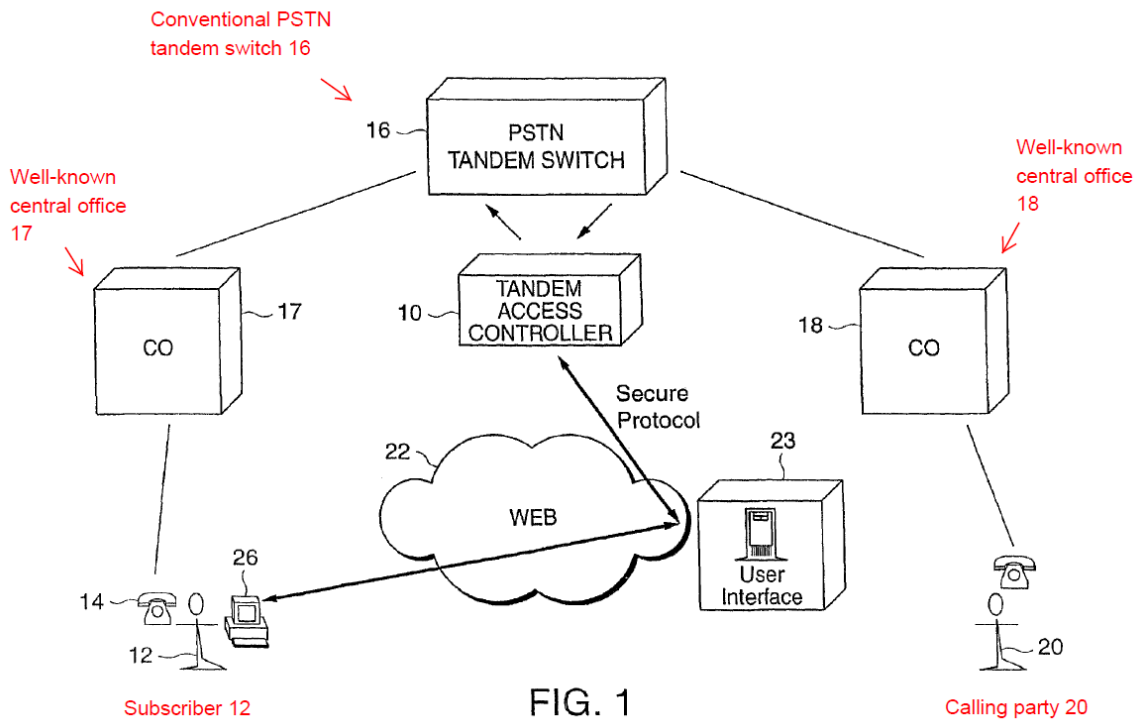


Figure 1 illustrates a tandem access controller connected to an existing PSTN tandem switch.

Annotated Figure 1 illustrates tandem access controller 10 connected to conventional Public Switched Telephone Network (PSTN) tandem switch 16. *Id.* at 4:43–44. According to the '113 Patent, “[d]etails of the operation of the existing phone network,” including directing of phone calls by “existing” PSTN tandem switch 16 to central offices 17, 18 are further described in a publication incorporated by reference, as well as “numerous books describing the PSTN.” *Id.* at 4:43–54.

The call flow in the network illustrated in Figure 1 with tandem access controller 10 remains the same as that in a conventional network, “except that additional 3rd-party features are applied to the call.” *Id.* at 4:43–47. More specifically, in the network illustrated in Figure 1, a call from calling party 20 to subscriber’s phone 14 is directed to tandem access controller 10, which places a second call, subject to third party control information, to subscriber 12. *Id.* at 4:55–58. The second call is placed “to the subscriber’s ‘private’ phone number,” without terminating the first call. *Id.* at 4:58–60. When subscriber 12 answers the call, tandem access controller 10 connects the first call to the second call so as to connect calling party 20 to subscriber 12. *Id.* at 4:62–65.

Figure 1 also shows web server 23 within World Wide Web 22, which is connected to tandem access controller 10. *Id.* at Fig. 1. Subscriber 12 specifies third-party call control features via web server 23 and these features are then relayed via World Wide Web 22 to tandem access controller 10. *Id.* at 5:17–25.

*E. Illustrative Claim*

Claim 1 is the only independent claim challenged in this proceeding. Claims 2, 8, 11, and 15–19 depend directly from claim 1. Independent claim 1 is illustrative of the claimed subject matter and is reproduced below:

1. A method performed by a web enabled processing system including one or more web servers coupled to a call processing system serving as an intelligent interconnection between at least one packet network and a second network coupled to a switching facility of a telecommunications network, the telecommunications network comprising edge switches for routing calls from and to subscribers within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, the method for enabling voice communication from a calling party to a called party across both the packet network and the second network, the method comprising the steps of:

receiving call data which is associated with a call originated by the calling party via either the packet network or the second network, at the call processing system, the calling party using a communications device to originate the call for the purpose of initiating voice communication, the call processing system coupled to at least one switching facility of the telecommunications network via the second network, the call processing system processing the call across both the packet network and the second network to complete the call to the called party; and

establishing the voice communication between the calling party and the called party after the call is completed, across both the packet network and the second network.

Ex. 1001, 12:30–56.

II. CLAIM CONSTRUCTION

*A. Legal Standard*

In an *inter partes* review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the

specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Under this standard, claim terms are presumed to have their ordinary and customary meaning, as understood by a person of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

*B. Decision on Institution*

In the Decision on Institution, we made determinations regarding the broadest reasonable interpretations of “web enabled,” “coupled to,” “switching facility,” and “tandem access controller.” These determinations are summarized in the table below.

Claim Term	Broadest Reasonable Interpretation Determination in Decision on Institution
“web enabled”	”[W]e determine that the broadest reasonable interpretation, in light of the Specification, of the term ‘web enabled’ encompasses the examples set forth in the ’113 Patent Specification including (1) systems that allow users to enter information through ‘a web portal’ ([Ex. 1001,] 1:36–37, 41) and (2) ‘TAC 10 or other interface system’ ( <i>id.</i> at 5:38–39) that allows a user to add or change features by accessing a ‘public internet portal’ ( <i>id.</i> at 5:38–44) and/or ‘[a] user-friendly web page’ ( <i>id.</i> at 5:44). We determine that no other express construction is necessary.” Dec. on Inst. 8.
“coupled to”	“[W]e determine that the broadest reasonable interpretation of the term “coupled to” includes both a direct and an indirect connection.” <i>Id.</i> at 13.
“switching facility”	“[W]e determine that the broadest reasonable interpretation of the term is any switch in the telecommunication network.” <i>Id.</i> at 16.
“tandem access controller”	“[W]e determine that the asserted prior art discloses . . . the more limited example of a processor that does not connect to subscribers directly. Accordingly, on this record and at this juncture, we determine that no

	express construction of the term ‘tandem access controller’ is necessary to resolve a controversy in this proceeding.” <i>Id.</i> at 18.
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Regarding Petitioner’s contentions for the phrase “a call processing system serving as an intelligent interconnection between at least one packet network and a second network coupled to a switching facility of a telecommunications network, the telecommunications network comprising edge switches for routing calls from and to subscribers within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas” (Pet. 23–27, 28–29) we determined that no express construction of the phrase was needed other than the determinations set forth above. Dec. on Inst. 8–13.

*C. The Parties’ Contentions*

Patent Owner disputes the broadest reasonable interpretations in the Decision on Institution of “switching facility,” “coupled to,” and “tandem access controller.” PO Resp. 30–39, 65; *see also id.* at 10–29 (arguing disclaimer reflected in terms “switching facility” and “coupled to.”) Petitioner agrees with our determinations. Pet. Reply 13–18. We address the parties’ contentions regarding these disputed terms below.

Regarding other terms, for example, “web-enabled,” our determinations are not disputed by Patent Owner (PO Resp. 30–39, 65). Only terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Accordingly, we determine that no express construction of these terms is necessary.

*D. “switching facility”*

We turn to the parties’ contentions regarding the term “switching facility” recited in independent claim 1. The dispute between the parties pertains to whether another device recited in claim, i.e., a call processing system may be “*connected to an edge switch.*” See, e.g., PO Resp. 31 (emphasis added).

The preamble of claim 1 recites “the telecommunications network comprising edge switches for routing calls from and to subscribers within a local geographic area and *switching facilities* for routing calls to *other edge switches or other switching facilities* local or in other geographic areas.”<sup>3</sup> Ex. 1001, 12:35–39 (emphasis added). Apart from the claims, the term “switching facility” does not appear in the Specification. The term was introduced into the claims by amendment during prosecution of the ’777 Patent Application. Ex. 1007, 75–87.

At institution, we adopted Petitioner’s proposed construction for “switching facility,” as it is consistent with the intrinsic evidence and the term’s plain and ordinary meaning, construing “switching facility” as “any switch in the telecommunication network.” Dec. 15–16; Pet. 21; Ex. 1007, 94, 94 n.1 (Applicants defined a “switching facility” as “[a]ny point in the switching fabric of converging networks”); TELECOMMUNICATIONS: GLOSSARY OF TELECOMMUNICATION TERMS, THE FEDERAL STANDARD 1037C, S-35 (1996) (Ex. 1008, 391) (defining “switching center” and “switching facility” as synonyms that mean “a facility in which switches are

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<sup>3</sup> In this proceeding, the parties agree that the preamble should be given patentable weight. Pet. 22–36; Prelim. Resp. 34; PO Resp. 31. For purposes of this Decision, we proceed on the assumption that it is.

used to interconnect communications circuits on a circuit-, message-, or packet-switching basis”); THE NEWTON’S TELECOM DICTIONARY, (15th ed. 1999) (Ex. 1009) (defining “switching centers” to refer to all five classes of switches in the PSTN)). We rejected Patent Owner’s proposed construction because it would improperly import limitations into the claim. Dec. 15–16.

In its Response, Patent Owner maintains that “switching facility” is not an edge switch or edge device. PO Resp. 1–36. Patent Owner argues that the claim expressly distinguishes that a “switching facility” is not an “edge switch,” and that construing “switching facility” to include “edge switch” would render the claim terms superfluous. *Id.* at 31–36. In Patent Owner’s view, Applicants of the ’113 Patent “unequivocally disclaimed controllers that applied call control features through an edge switch, or controllers that were themselves an edge device, from the scope of their inventions.” *Id.* at 1–35. We disagree and address below each of Patent Owner’s arguments in turn.

First, based on the evidence before us, we decline to adopt Patent Owner’s proposed claim construction, as it would import limitations—“connecting the Tandem Access Controller (‘TAC’) to a PSTN tandem switch, rather than edge switches and edge devices”—from a preferred embodiment into the claim. *Id.* at 2, 9–10, 14–20; Ex. 1001, 2:1–3, 3:29–30, 3:66–4:3. Significantly, neither “Tandem Access Controller” nor “tandem switch” appears in most of the challenged claims, including independent claim 1.<sup>4</sup> In fact, Patent Owner admits that Applicants used

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<sup>4</sup> Of the challenged claims, only dependent claims 18 and 19 recite “tandem access controller.” The parties’ claim construction contentions for that term are discussed *infra* Section II.F.



“switching facility” in the claim instead of “tandem switch” to indicate that “switching facility” has broader scope than “tandem switch.” Prelim. Resp. 38; PO Resp. 35–36.

A person of ordinary skill in the art would have understood that these two terms have different meanings. In the context of telecommunication and network communication, the plain and ordinary meanings of these terms are clear—“tandem switch” refers to class 4 switches in the PSTN (Ex. 1002 ¶ 40; Ex. 2022 ¶ 36), whereas “switching facility” refers to all five classes of switches in the PSTN (Ex. 1009) or “a facility in which switches are used to interconnect communications circuits on a circuit-, message-, or packet-switching basis” (Ex. 1008, 391).<sup>5</sup> This is consistent with Applicants’ definition of “switching facility”—“[a]ny point in the switching fabric of converging networks”—that was submitted with the Amendment that introduced the term. Ex. 2005, 82, 82 n.1. Moreover, “the general assumption is that different terms have different meanings.” *Symantec Corp. v. Comput. Assocs. Int’l, Inc.*, 522 F.3d 1279, 1289 (Fed. Cir. 2008).

Importantly, even if we were to interpret “switching facility” as a “tandem switch,” it would not affect our analysis below because the language of claim 1 does not require a *direct* connection between a

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<sup>5</sup> A “hybrid” switch has combined class 4 and class 5 switching features. Ex. 1002 ¶ 41; Ex. 2002, 159 (cited in Ex. 2022 ¶ 38). As noted in our claim construction discussion in our Decision on Institution, a reference relied upon by Patent Owner (Prelim. Resp. 5 (Ex. 2003, 474)) indicates “[i]n a contemporary PSTN, a tandem switch commonly is a hybrid Class 4/5, functioning as both a tandem and a CO (Class 5)” (Ex. 2003, 474–75). This reference is extrinsic evidence *offered by Patent Owner*. Nonetheless, this evidence is not necessary for us to arrive at our determinations herein, but adds contextual background that further supports our analyses.

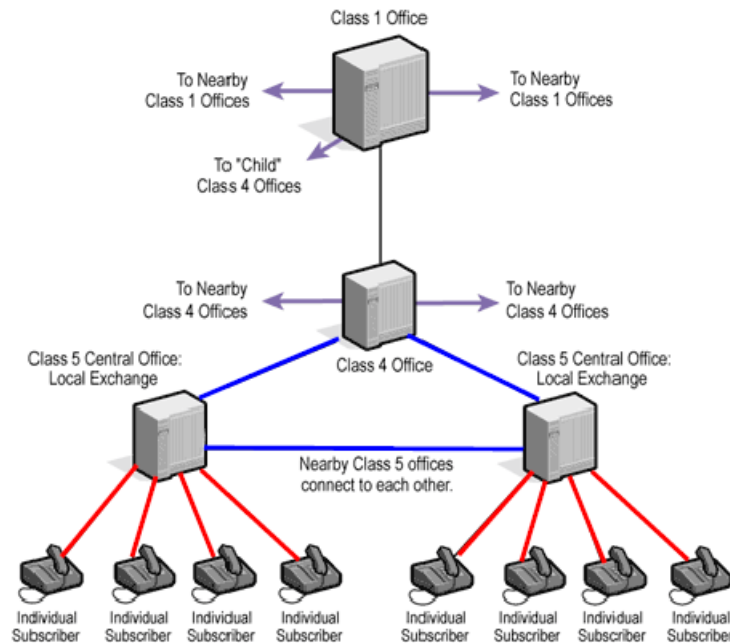
controller and a switching facility. Indeed, claim 1 recites “the call processing system *coupled to* at least one *switching facility*.” Ex. 1001, 12:48–49 (emphases added). We discuss the broadest reasonable interpretation of “coupled to” *infra* Section II.E.

We decline to construe “switching facility” as not an edge switch or edge device, as urged by Patent Owner. As our reviewing court has explained, “each claim does not necessarily cover every feature disclosed in the specification,” and “it is improper to limit the claim to other, unclaimed features.” *Ventana Med. Sys., Inc. v. BioGenex Labs., Inc.*, 473 F.3d 1173, 1181 (Fed. Cir. 2006). Furthermore, the court “has repeatedly cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346–47 (Fed. Cir. 2015); *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (noting that “it is important not to import into a claim limitations that are not a part of the claim.”) “[I]t is the *claims*, not the written description, which define the scope of the patent right.” *Williamson*, 792 F.3d at 1346–47; *see also Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (noting that “[i]t is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.”)

Second, we are not persuaded by Patent Owner’s arguments that the claims expressly distinguish that a “switching facility” is not an “edge switch,” and that construing “switching facility” to include “edge switch” would render the claim terms superfluous. PO Resp. 31–36; Ex. 2022 ¶¶ 61–65. Patent Owner’s arguments fail to appreciate that claim 1 sets forth two separate functional requirements: (1) “edge switches for *routing*

*calls from and to subscribers within a local geographic area*”; and  
(2) “switching facilities for *routing calls to other edge switches or other switching facilities* local or in other geographic areas.” Ex. 1001, 12:35–39 (emphases added). The evidence before us shows that edge switches can perform the function recited in the first claim element, as well as “routing calls to other edge switches or other switching facilities local or in other geographic areas,” as recited in the second claim element. Ex. 1002 ¶¶ 38–42. The two terms, “edge switches” and “switching facilities,” are not mutually exclusive, but rather “switching facilities” encompasses all five classes of switches in the PSTN, including an edge switch. Ex. 1008, 391; Ex. 1009; Ex. 2005, 82, 82 n.1.

Notably, an ordinarily skilled artisan would have recognized that an edge switch can route calls to other edge switches directly via a direct trunk group or indirectly through a tandem switch, and to other switching facilities (e.g., other tandem switches). Ex. 1002 ¶¶ 38–42. Dr. Lavian’s testimony regarding background information on the PSTN (Ex. 1002 ¶¶ 38–42) cites to a figure, which is reproduced below (with highlighting added).



Annotated Figure Illustrating the PSTN Switch Hierarchy (Ex. 1002 ¶ 40)

As shown in the highlighted figure above, an edge switch (a class 5 switch) can route calls from and to users within local geographic area (highlighted in red). An edge switch also can route calls to a tandem switch and other edge switches directly using a direct trunk or indirectly through a tandem switch (highlighted in blue). Ex. 1002 ¶¶ 38–42; *see also* Ex. 2003, 102 (“[A] CO traditionally houses one or more voice-optimized circuit switches to interconnect subscriber lines within a local area known as the carrier serving area (CSA) and to connect subscriber local loops to network trunks.”); Ex. 2002, 159–161 (“*Class 5 offices are the local exchange offices, or Central Offices (COs), which serve end users through local loop connections. . . Should significant volumes of traffic be exchanged directly*

between COs, they may be directly interconnected. More commonly, they are interconnected through tandem switches.”)<sup>6</sup>

The aforementioned functional claim elements map to the switches in the PSTN. The first claim element takes into account routing calls from and to users within a local geographic area. For the second claim element, the claim language “switching facilities for routing calls to *other edge switches*” takes into account routing calls *from an edge switch to other edge switches*. The claim language “switching facility for routing calls . . . to other switching facilities” takes into account routing calls *from an edge switch to a tandem switch*, as well as from a tandem switch to other switches, including edge switches, in the network. Therefore, construing “switching facility” to include “edge switch” would not render the claim terms superfluous.

Patent Owner also attempts to show that an edge switch is not capable of performing the recited functions in the second claim element, arguing that “an edge switch cannot ‘interconnect end office switches to other geographic areas that are *not local* to an end office switch.’” PO Resp. 31–33; Ex. 2022 ¶¶ 61–65 (emphasis added). However, that argument is not commensurate with the scope of the claims. For instance, claim 1 does not require every switching facility to perform that function. In fact, that claim uses the term “or” rather than “and”—“switching facilities for routing calls to other edge switches *or* other switching facilities *local or* in other geographic areas.” Ex. 1001, 12:37–39 (emphasis added). Patent Owner does not identify, nor can we discern, a reason to read “or” as “and.” As discussed above, an edge switch is capable of routing calls to other edge switches and other switching

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<sup>6</sup> Exhibits 2002 and 2003 are relied upon by Patent Owner. *See, e.g.*, Ex. 2022 ¶ 38

facilities within local geographic areas. Ex. 1002 ¶¶ 38–42; Ex. 2003, 102; Ex. 2002, 159–161.

In light of the foregoing, Patent Owner’s arguments (PO Resp. 31–36) and Mr. Bates’ testimony (Ex. 2022 ¶¶ 61–65) that claim 1 expressly distinguishes that a “switching facility” is not an “edge switch,” and that construing “switching facility” to include “edge switch” would render the claim terms superfluous, are unavailing.

Third, we are not persuaded by Patent Owner’s argument and its expert’s testimony that the Specification sets forth an unmistakable disclaimer that “switching facility” is not an edge switch or edge device. PO Resp. 1–3, 9–20, 29–39. There is a presumption that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). To overcome this presumption, the patentee must “clearly set forth” and “clearly redefine” a claim term away from its ordinary meaning. *Bell Atlantic Network Servs., Inc. v. Covad Commc’ns Grp., Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001). The disavowal must be “unmistakable” and “unambiguous.” *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1322 (Fed. Cir. 2012).

The challenged claims do not recite “tandem switch,” but rather “switching facility.”<sup>7</sup> Our construction for “switching facility” is consistent with its plain and ordinary meaning, encompassing all five classes of switches in the PSTN, including edge switches. Ex. 1008, 391; Ex. 1009; Ex. 1002 ¶ 60.

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<sup>7</sup> Only dependent claims 18 and 19 recite “tandem access controller,” and that term is discussed *infra* Section II.F.

Turning to the Specification, the term “switching facility” is not found anywhere in the Specification. Accordingly, there is not much, if anything, intrinsically in the Specification that explicitly defines or informs a person of ordinary skill in the art at the time of the invention the meaning of “switching facility.” As discussed above, Patent Owner, in fact, admits that Applicants introduced the term “switching facility” into the claims by Amendment to indicate that “switching facility” has *broader* scope than “tandem switch.” Prelim. Resp. 38; PO Resp. 35–36; Ex. 2005, 82, 82 n.1.

We note that Patent Owner’s arguments and Mr. Bates’ testimony rely on the discussions in the Specification regarding *both edge switches and edge devices* (Ex. 1001, 1:37–40, 1:59–67, 2:40–54), to support their assertion that Applicants disparage the application of call control features at an *edge switch*. PO Resp. 14–15; Ex. 2022 ¶¶ 46, 47. In any event, the Specification clearly states that connecting a controller at a tandem switch, rather than an *edge switch*—to eliminate the problems regarding the provision of call features through the local service telephone company (telco) business office—is *a preferred embodiment*. Ex. 1001, 2:1–3 (“A preferred embodiment of the inventive system described herein connects at the tandem, thereby eliminating these problems.”), 3:28–29 (“In one embodiment, the system includes a processor, referred to herein as a tandem access controller.”), 3:66–4:1 (“FIG. 1 illustrates the tandem access controller (TAC) in one embodiment of the present invention connected to the existing PSTN tandem switch.”).

Additionally, again Patent Owner’s contentions (PO Resp. 10–39) depend not only on adoption of its proposed construction for “switching facility,” but also its proposed construction for “coupled to” in only the

recitation of “coupled to at least one switching facility.” We discuss Patent Owner’s contentions regarding “coupled to” *infra* Section II.E.

Furthermore, the ’113 Patent Specification describes other embodiments. For instance, the Specification explains that in one embodiment the *web-enhanced services* “coexist with and overlay the local phone service at the local level.” *Id.* at 3:41–57. As Mr. Bates confirms, edge switches “serve end users through local loop connections,” and “interconnect subscriber lines within a local area.” Ex. 2022 ¶ 38; Ex. 2002, 159; Ex. 2003, 102.

The Specification also does not support Patent Owner’s position regarding *edge devices*. PO Resp. 14–17; Ex. 2022 ¶¶ 46–50. The allegedly disparaging statements are directed to only *certain types of edge devices*, such as phones, PBXs, and edge devices that provide extremely limited features. Ex. 1001, 1:34–37, 2:37–51. Therefore, if there is a disclaimer, such a disclaimer, at most, is limited to those prior art edge devices discussed specifically in the Specification.

More importantly, recognizing the advantages of a preferred embodiment over the prior art systems does not amount to an unmistakable disclaimer. As our reviewing court has explained, “patentees [are] not required to include within each of their claims all of [the] advantages or features described as significant or important in the written description.” *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1331 (Fed. Cir. 2004). “An invention may possess a number of advantages or purposes, and there is no requirement that every claim directed to that invention be limited to encompass all of them.” *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1370 (Fed. Cir. 2003).



Here, claim 1 is directed to a *web-enabled* processing system including one or more *web servers* coupled to a call processing system with access to two networks, one of which is coupled to a switching facility. In the “web-enhanced services” embodiments, the Specification does not describe requiring a controller to be connected to a tandem switch *directly*. Ex. 1001, 3:41–57. Even in cases where the specification describes only a single embodiment, our reviewing court consistently has not construed the claim as being limited to that embodiment. *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012) (holding that it is not enough that the only embodiment, or all of the embodiments, contain a particular limitation to limit a claim to that particular limitation); *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004).

In light of the foregoing, we do not agree with Patent Owner that the Specification sets forth an unmistakable disclaimer.

Finally, we also are not persuaded by Patent Owner’s argument that the prosecution history confirms the alleged disclaimer set forth in the Specification. PO Resp. 21–28; Ex. 2022 ¶¶ 55–59. As an initial matter, no unmistakable disclaimer is found in the Specification for the reason stated above. Therefore, Patent Owner’s assertion that Applicants did not rescind the clear disclaimer is misplaced.

Further, in the Decision on Institution, we rejected Patent Owner’s argument that the prosecution history makes clear that “switching facility” cannot include an edge switch. Dec. on Inst. 15–16. We noted that the remarks made during prosecution are equivocal, and do not persuade us of a disavowal or disclaimer of the scope of the term “switching facility” to

exclude an edge switch. *Id.* For example, the portion of the prosecution history that Patent Owner cites includes a footnote for defining a “switching facility” as:

Any point in the switching fabric of converging networks, also referred to in industry as a signal transfer point (STP), signal control point (SCP), session border controller (SBC), gateway, access tandem, class 4 switch, wire center, toll office, toll center, PSTN switching center, intercarrier connection point, trunk gateway, hybrid switch, etc.

Ex. 2005, 82, 82 n.1.

The above description does not explain that a switching facility excludes an edge switch. Indeed, “[a]ny point in the switching fabric of converging networks” appears broad. As Petitioner points out (Reply 12), these examples provided by Applicants include a hybrid switch that is “both an edge switch and a tandem switch” and a “wire center” that was “well known to be used in ‘a central office’ and in a ‘class 5’ (*i.e.*, edge) switch.” Ex. 2002, 159; Ex. 1044, 62:15–63:2.

Patent Owner counters that we “misread” the Applicants’ definition, suggesting that the Applicants’ remarks should be read without that definition. PO Resp. 26–27. Relying on Mr. Bates’ testimony, Patent Owner argues the Applicants’ remarks “make clear that they have always consistently distinguished edge switches and tandem switches throughout the prosecution history.” *Id.* at 26–28; Ex. 2022 ¶¶ 58–59.

However, as discussed above, the Applicants’ definition, which is a part of the intrinsic evidence in this record, is consistent with the term’s plain and ordinary meaning (Ex. 1008, 391; Ex. 1009) and the usage of the term in claim 1 (Ex. 1001, 12:30–56), as well as the general knowledge of a person with ordinary skill in the art (Ex. 1002 ¶¶ 38–42, 59–60). Mr. Bates’

testimony (Ex. 2022 ¶¶ 58–59), which is extrinsic evidence, merely repeats Patent Owner’s arguments. Moreover, “extrinsic evidence may be used only to assist in the proper understanding of the disputed limitation; it may not be used to vary, contradict, expand, or limit the claim language from how it is defined, even by implication, in the specification or file history.” *Bell Atl. Network Servs. v. Covad Commc’ns Grp.*, 262 F.3d 1258, 1269 (Fed. Cir. 2001). Our reviewing court also has explained that “extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” *Phillips*, 415 F.3d at 1318.

In any event, the portions of the prosecution history relied upon by Patent Owner are ambiguous, and do not amount to an unmistakable disclaimer that limits the scope of “switching facility” to *exclude* an edge switch. Notably, Patent Owner and Mr. Bates (PO Resp. 26–27; Ex. 2022 ¶ 58) cite to the following Applicants’ remarks for support:

The PSTN is a configuration of *switching facilities for routing calls from calling parties to called parties*, comprising a plurality of end office switches (also referred to as central office switches or edge switches (e.g., a class 5 switch)) and a plurality of *interconnected switching facilities (also referred to as tandem switches)*. The end office switches connect calling parties to called parties only within a local geographic area. The *tandem switching facilities* route calls received via end office switches or other tandem switching facilities to called parties within other geographic areas (national or international, beyond the local geographic area that a subscriber is in). Typically, a telephone call involves an originating end office switch, a plurality of tandem switches, and a terminating end office switch.

Ex. 2005, 82 (emphases added).

The phrase “switching facilities for routing calls from calling parties to called parties” in the first sentence makes clear that “switching facilities” encompasses edge switches. As discussed above, edge switches, not tandem switches, route calls from and to users. Ex. 1002 ¶¶ 38–42, 59–60. The above paragraph also makes clear that “switching facilities” encompasses tandem switches, referring to this type of “switching facilities” sometimes, as “interconnected switching facilities” and “tandem switching facilities.” Applicants’ usage of “switching facilities” in this paragraph is consistent with our claim construction, and the term’s plain and ordinary meaning, encompassing all five classes of switches in the PSTN, including edge switches. Ex. 1008, 391; Ex. 1009; Ex. 1002 ¶ 59–60. Therefore, the Applicants’ remarks do not support Patent Owner’s position that “switching facilities” excludes edge switches.

Patent Owner also maintains that Applicants distinguished their claimed controller from Schwab, the prior art asserted by Examiner. PO Resp. 21–29. As support, Patent Owner cites to the record of Applicants’ in-person interview with the Examiner that states:

Applicant explained the differences between Schwab et al and their apparatus. The major difference being that the subscriber is allowed to connect to *a tandem access switch directly through a tandem access controller* without any modification to the network. Applicant is going to file an RCE stressing this difference.

PO Resp. 22–23 (citing Ex. 2005, 110) (emphasis added by Patent Owner). However, notwithstanding this agreement between Applicants and Examiner during the prosecution history of the ’777 patent, the claims at issue here in the ’113 Patent do not recite that limitation. Neither a “tandem access controller” nor a “tandem switch” is recited in independent claim 1, and

none of the challenged claims recite a *direct connection* between these two devices. Therefore, the purported disclaimer in the prosecution history of the '777 patent regarding Schwab does not apply to the challenged claims. *See Ventana*, 473 F.3d at 1182 (holding that the alleged disclaimer made with respect to another claim limitation did not apply to the asserted claims that used different claim language).

Upon consideration of the entire trial record, we maintain that the remarks made during prosecution are equivocal, and do not persuade us of a disavowal or disclaimer that limits the scope of “switching facility” to exclude an edge switch.

In light of the foregoing, we are not persuaded by Patent Owner’s argument and Mr. Bates’ testimony that Applicants of the '113 Patent “unequivocally disclaimed controllers that applied call control features through an edge switch, or controllers that were themselves an edge device, from the scope of their inventions.” PO Resp. 1–39; Ex. 2022 ¶¶ 46–66. For the reasons stated above, in light of the Specification, the relevant prosecution history, and the knowledge of an ordinarily skilled artisan, we decline to construe “switching facilities” to exclude “edge switches.”

For this Decision, we discern no reason to modify our claim construction set forth in the Decision on Institution with respect to “switching facility,” construing the term as “any switch in the telecommunication network,” which, as discussed above, is consistent with its plain and ordinary meaning as understood by a person of ordinary skill in the art in the context of the '113 Patent (Ex. 1008, 391; Ex. 1009; Ex. 1002 ¶¶ 38–42, 59–60), the usage of the term in the claim (Ex. 1001, 12:30–59), and the intrinsic evidence (Ex. 2005, 82, 82 n.1).

*E. “coupled to”*

Independent claim 1 recites “coupled to.” Petitioner argues that the broadest reasonable interpretation of “coupled to” means “connected either directly or indirectly.” Pet. 19–20. As we explained in the Decision on Institution, the plain and ordinary meaning of the term “coupled to” does not require a direct connection. Dec. on Inst. 9. Patent Owner does not dispute this plain and ordinary meaning. PO Resp. 36–39.

Patent Owner, instead, contends,

Petitioner construes this language as meaning “connected either directly or indirectly.” Pet. at 19. Petitioner’s goal is to obtain a construction that would allow a controlling device to be connected to a “switching facility” through an edge switch (i.e., the call processing system would be connected directly to the edge switch, and, hence, indirectly to a “switching facility” in the PSTN). Because this configuration was disclaimed by Applicants, Petitioner’s construction is incorrect.

PO Resp. 36.

Patent Owner’s contentions pertain to only one recitation of “coupled to” in claim 1, i.e., “the call processing system coupled to at least one switching facility.” Claim 1, however, recites “coupled to” more than once. For example, claim 1 recites “one or more web servers *coupled to* a call processing system,” “a second network *coupled to* a switching facility of a telecommunications network.” Ex. 1001, 12:30–59. Patent Owner does not urge that we construe “coupled to” as requiring a direct connection consistently throughout the claim and provides no argument or evidence supporting that “coupled to” in these other recitations requires a direct connection. PO Resp. 10–39.

Instead, Patent Owner focuses on only one recitation of “coupled to” in claim 1, i.e., “the call processing system coupled to at least one switching

facility” and contends that the ’113 Patent Specification “is repetitive and consistent in showing the claimed call processing system or controlling device as *always being connected to a tandem switch*, not an edge switch to access the PSTN.” *Id.* at 37 (citing Ex. 1001, Fig. 1; Ex. 2022 ¶ 66). Patent Owner’s argument pertains to the tandem switch, versus the edge switch. Patent Owner, however, refrains from arguing that the connection between the call processing system and the switch includes no hardware between these two components. PO Resp. 10–39.

Construing “coupled to” to require that the connection between the call processing system and the switch be limited to only a single line connection, without any hardware or other circuitry is not consistent with the ’113 Patent Specification discussion cited by Patent Owner. In particular, that discussion in the ’113 Patent Specification relies on the knowledge of the skilled artisan for how to implement the tandem access controller. For instance, tandem access controller 10 is illustrated as a single box with arrows to PSTN tandem switch 16 and a bidirectional arrow to Web 22. Ex. 1001, Fig. 1; *see also id.* at Figs. 2, 7, 8 (similarly illustrating TAC 10 as a box with lines or arrows to the PSTN and Web). The ’113 Patent acknowledges that the PSTN used well-known SS7 signaling and standardized PSTN equipment, but the ’113 Patent relies on the knowledge of the skilled artisan for the operation of this signaling and equipment. *See, e.g.*, Ex. 1001, Figs. 1, 2, 7, 8 (omitting for example signaling transfer points and related connections);<sup>8</sup> *see also id.* 4:49–54 (relying on another

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<sup>8</sup> Dr. Lavian testifies that SS7 signaling is performed in accordance with the industry standard that uses signaling transfer points (STPs). Ex. 1002 ¶ 44

publication incorporated by reference for details of SS7 operation and call flow), *id.* at 7:59–65 (relying on global standard for details of how information, including caller ID, is provided). In contrast to the PSTN, Web 22 was well-known to be a packet network that used a packet-based protocol, such as Internet Protocol (IP), rather than SS7. *See, e.g.*, Ex. 1002 ¶¶ 45–48. Again the '113 Patent also omits details and relies on the knowledge of the skilled artisan for interfacing with Web 22, as well as the operation and infrastructure of Web 22. *See, e.g., id.* at 2:51–52, 4:4–8, 5:17–20, 5:52–56, Figs. 1, 2, 7, 8.

As set forth in the '113 Patent Specification, tandem access controller 10 is connected to and communicates with both the PSTN and Web 22, and the '113 Patent Specification relies on the knowledge of the skilled artisan for how to implement such a controller. *Id.* at 6:48–55. For instance, the Specification describes as exemplary that the tandem access controller “*may be implemented using conventional processor hardware*” and the connection to the tandem switch “*may be as simple as a telephone circuit*” (*id.* at 6:48–50).<sup>9</sup> Far from mandating Patent Owner’s exclusion, this high-level, simplified description itself indicates it relies on the knowledge of the skilled artisan for developing the computer program used by the tandem access controller by further stating that it was “well within the capability of those skilled in the art” to “[d]evis[e] the software/firmware use[d] to control the

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(citing Ex. 1017); *see also* Ex. 1017, 1–4 (describing SS7 signaling and use of STPs).

<sup>9</sup> The '113 Patent Specification also describes that “TAC 10 may use *any combination of hardware, firmware, or software.*” Ex. 1001, 4:39–40 (emphasis added).



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TAC 10.” *Id.* at 6:52–55. The plain and ordinary meaning of “coupled to” is consistent with the ’113 Patent Specification’s description, as well as its reliance on the knowledge of the skilled artisan.

Furthermore, during oral argument, Patent Owner agreed that the controller need not be connected directly to the tandem access switch.

JUDGE PARVIS: So when you say associated, it [the tandem access controller] doesn’t have to be directly connected to the tandem access switch; is that correct?

MR. MURPHY: That’s correct.

IPR2016-01261, Paper 68, 56:18–20.<sup>10</sup>

In addition to relying on embodiments in the ’113 Specification, Patent Owner also points to its disclaimer. In particular, Patent Owner contends “the disclaimer can be reflected in any or all of the claim terms “switching facility” and “coupled to” because the scope of the disclaimer relates to the connection of the controller to the switching facility.” PO Resp. 30. For the reasons given *supra* Section II.D, we are not persuaded by Patent Owner’s contentions regarding the disclaimer. Patent Owner does not provide any further contentions regarding “coupled to” and the disclaimer other than those already discussed. PO Resp. 36–39.

Neither party argues that every recitation of “coupled to” requires a direct connection, and neither party disputes that the plain and ordinary meaning of “coupled to” is “connected either directly or indirectly.” Pet. 19–20; PO Resp. 36–39. Indeed, it is settled that “coupled to” generally

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<sup>10</sup> Like the instant proceeding, IPR2016-01261 involves challenges to claims 1, 18, and 19 of the ’113 Patent and Patent Owner takes the same positions with respect to “switching facility,” “coupled to,” and “tandem access controller.” *Compare* IPR2016-01261, Paper 30, 10–38, 63 *with* PO Resp. 10–39, 64–65.

means that direct connection is not required. *See, e.g., Bradford Co. v. Conteyor N. Am., Inc.*, 603 F.3d 1262, 1270–71 (Fed. Cir. 2010).

For these reasons, we decline to construe “coupled to” in only the recitation of “the call processing system coupled to at least one switching facility” as not connected through an edge switch, as urged by Patent Owner. Accordingly, we discern no reason to modify our claim construction set forth in the Decision on Institution with respect to “coupled to,” construing the term in accordance with its plain and ordinary meaning as including “both a direct and indirect connection.”

*F. “tandem access controller”*

Each of claims 18 and 19 recites “tandem access controller,” and claim 19 depends directly from claim 18. No other challenged claims recite the term. Petitioner contends “[t]he phrase ‘tandem access controller’ in claims 18 and 19 is not a known term of art in telecommunications.” Pet. 27. Petitioner additionally contends that “the broadest reasonable interpretation in light of the [S]pecification of the phrase ‘tandem access controller’ is ‘a processor’ (or a device with a processor).” *Id.*

At institution, we agreed with Petitioner that the ’113 Patent Specification describes “tandem access controller” as a processor. Dec. on Inst. 17 (Ex. 1001, 3:28–29, 6:48–49, 6:53–55). We also determined that “tandem access controller” was covered by a prior art “processor that does not connect to subscribers directly.” *Id.* at 18. On those bases, we did not make further determinations regarding the meaning of “tandem access controller,” except we rejected Patent Owner’s proposal based on an overly narrow construction of “coupled to.” *Id.* at 16–18.

In its Response, Patent Owner provides only two sentences contending:

This [Petitioner's] construction, however, is unreasonably broad because it does not differentiate “tandem access controller” from “call processing system,” and further is an attempt to avoid the disclaimer. A POSA would understand that in order to give meaning to the word “tandem” in the term “tandem access controller” and to differentiate “tandem access controller” from “call processing system,” such a controller could not be coupled to an edge switch (as opposed to a tandem switch).

PO Resp. 57 (citing Ex. 2022 ¶ 82). Mr. Bates' testimony (Ex. 2022 ¶ 82), which is extrinsic evidence, merely repeats Patent Owner's arguments.

As we explained in the Decision on Institution (Dec. on Inst. 17), the '113 Patent Specification describes “tandem access controller” as “a processor.” Ex. 1001, 3:28–29; *see also id.* at 6:48–49 (“The TAC 10 may be implemented using *conventional processor hardware*”) (emphasis added). Additionally, the '113 Patent Specification indicates “[d]evising the software/firmware use[d] to control the TAC 10 is *well within* the capability of those skilled in the art since the various control features that can be made available are generally *already known.*” *Id.* at 6:52–55 (emphasis added). Patent Owner does not provide contentions responsive to our analysis of this intrinsic evidence. *See, e.g.*, PO Resp. 57; Ex. 2022 ¶ 82.

Additionally, we explained that the '113 Patent Specification describes an embodiment of the tandem access controller that is simply “inside the PSTN” because “it does not connect *directly to subscribers.*” Ex. 1001, 5:3–5 (emphasis added). Patent Owner again does not provide contentions responsive to our analysis of this intrinsic evidence. *See, e.g.*, PO Resp. 57; Ex. 2022 ¶ 82. As set forth in our Order of December 28, 2016, issued with our Decision on Institution, Patent Owner has been

cautioned “that any arguments for patentability not raised in the response will be deemed waived.” Paper 13, 3; *see also* Paper 15 (Decision Denying Patent Owner’s Request for Rehearing) (“During trial, Patent Owner has an opportunity to resubmit in its Response arguments previously made in its Preliminary Response, as well as its arguments newly made in the Request for Rehearing, along with any other new arguments, explanations, and supporting evidence. As noted in the Scheduling Order, any arguments for patentability not raised in the Response will be deemed waived.”)

Patent Owner’s contention that “such a controller could not be coupled to an edge switch” (PO Resp. 57; Ex. 2022 ¶ 82) is conclusory and at odds with ’113 Patent Specification’s description of the tandem access controller as being coupled to the PSTN, which as discussed *supra* Section II.D comprises both tandem and edge switches. Patent Owner’s dispute that Petitioner’s proposed construction is “an attempt to avoid the disclaimer” (PO Resp. 57) refers to the disclaimer discussed *supra* Section II.D (*id.* at 30). As discussed *supra* Sections II.D and II.E, we are not persuaded by Patent Owner’s arguments regarding the disclaimer and limiting either “switching facility” or “coupled to.”<sup>11</sup>

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<sup>11</sup> In our discussion of “coupled to” in connection with “tandem access controller” in the Decision on Institution, we noted a reference relied upon by Patent Owner (Prelim. Resp. 5 (Ex. 2003, 474)), which indicates “[i]n a contemporary PSTN, a tandem switch commonly is a hybrid Class 4/5, functioning as both a tandem and a CO (Class 5)” (Ex. 2003, 474–75). This reference is extrinsic evidence *offered by Patent Owner*. Patent Owner does not provide responsive contentions on our analysis regarding this evidence at the institution stage. Nonetheless, we need not rely on this evidence in this Decision in light of the intrinsic evidence discussed herein.

For this Decision, we discern no reason to modify our claim construction set forth in the Decision on Institution with respect to “tandem access controller,” because as set forth *infra* Section III.C.6.g, we determine that the asserted prior art discloses examples set forth in the ’113 Patent Specification of a tandem access controller, including the example of not connecting to subscribers directly. Furthermore, Patent Owner does not separately argue claims 18 and 19, other than the brief contentions noted above. Accordingly, we determine that no further express construction of the term “tandem access controller” is necessary to resolve a controversy in this proceeding.

### III. ANALYSIS

#### A. *Principles of Law*

Anticipation, under 35 U.S.C. § 102, requires a lack of novelty. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). To establish anticipation, each and every element in a claim, arranged as is recited in the claim, must be found in a single prior art reference. *Id.*

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

of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

*B. Level of Ordinary Skill*

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). Petitioner’s declarant, Dr. Lavian testifies that a person with ordinary skill in the art would have had “a bachelor’s degree in electrical engineering, computer science, or the equivalent thereof and approximately 2 years of professional experience within the field of telecommunications or network communications.” Ex. 1002 ¶ 19. Mr. Bates, Patent Owner’s declarant, agrees with this assessment. Ex. 2022 ¶ 22.

Therefore, we adopt Dr. Lavian’s assessment of a person with ordinary skill in the art. We further note that the prior art of record in the instant proceeding reflects the appropriate level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1354–55 (Fed. Cir. 2001) (“the prior art itself reflects an appropriate level” of ordinary skill in the art).

*C. Discussion of Claims*

Based on Petitioner’s contentions in the Petition, we instituted on grounds as follows: (1) claims 1, 2, 8, 15, 18, and 19 are unpatentable under § 102(b) as anticipated by Shtivelman; (2) claims 1, 2, 8, 18, and 19 are unpatentable under § 102(e) as anticipated by O’Neal; (3) claims 1, 11, and 15–17 are unpatentable under § 103(a) as obvious over O’Neal; and

(4) claims 1, 2, 8, 11, and 15–19 are unpatentable under § 103(a) as obvious over Shtivelman in combination with O’Neal. Dec. on Inst. 32. To support its contentions, Petitioner provides detailed explanations as to how the prior art meets each claim limitation. *See generally* Pet. (citing Ex. 1002).

Relying on Mr. Bates’ testimony, Patent Owner opposes, arguing that the prior art does not disclose the call processing system coupled to at least one switching facility, as required by claim 1. PO Resp. 54–56, 58–62 (citing Ex. 2022).

We begin our discussion below with an overview of Shtivelman and O’Neal, and then we address the parties’ contentions regarding unpatentability (1) under § 102(b) as anticipated by Shtivelman; and (2) under § 103(a) as obvious over Shtivelman in combination with O’Neal. Pet. 4. In view of our determinations with respect to these grounds of unpatentability, we do not address the parties’ contentions regarding anticipation by or obviousness over O’Neal alone.

*1. Shtivelman*

Shtivelman is directed to an Internet call-waiting telephone system, including an IP interface connected to both the PSTN and the Internet. Ex. 1005, 3:21–28. Figure 1 of Shtivelman is reproduced below, with annotations.

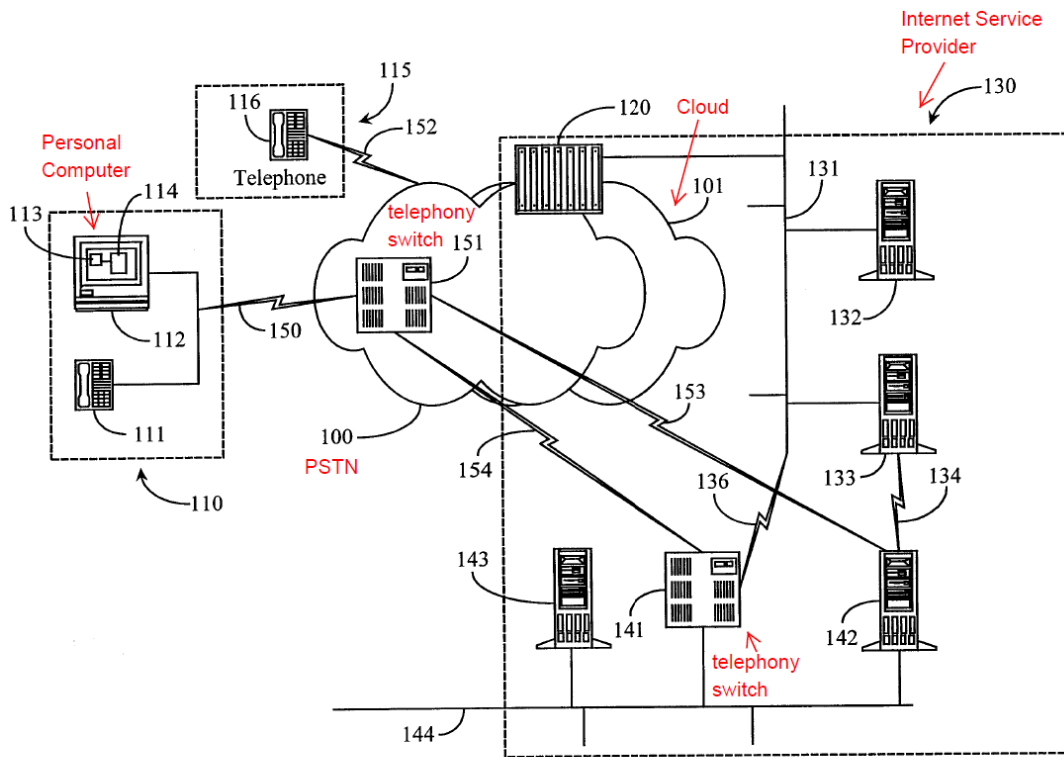


Fig. 1

Figure 1 illustrates a telephony system.

As shown in Figure 1 of Shtivelman above, a person at premises 115 having telephone 116 places a PSTN call to the client at station 110 using telephone 116 connected to PSTN 100 via line 152. *Id.* at 7:14–16. Client station 110 comprises telephone 111 and personal computer 112, which connect to PSTN 100 and Internet 101, via modem bank 120. *Id.* at 7:1–9. Shtivelman describes forwarding the call from telephone 116 to telephony switch 141. *Id.* at 7:26–8:2. The call is forwarded by retrieving a pre-defined number programmed into telephony switch 151 (*id.* at 7:20–25) or by server 142 directing the activities of telephony switch 151 through link 153 (*id.* at 12:9–11). When the latter of the alternatives is employed for call forwarding, the forwarding is set up by client station 110 logging onto ISP 130 to cause server 142 to forward calls from telephony switch 151 to



telephony switch 141. *Id.* at 12:11–15. In accordance with both alternatives, upon receipt of the forwarded call by telephony switch 141, telephony switch 141 converts the call into a digital Internet call using TCP/IP format and routes the resulting data to the Internet on TCP/IP link 136. *Id.* at 8:3–6, 8:17–26, 12:11–15. The call then is received by customer 110 in the form of an Internet phone call to PC 112. *Id.* at 8:12–16.

## 2. O'Neal

O'Neal is directed to a control center for permitting a subscriber to customize call forwarding parameters associated with a call forwarding service. Ex. 1003, 3:50–53. Figure 1 of O'Neal is reproduced below with annotations.

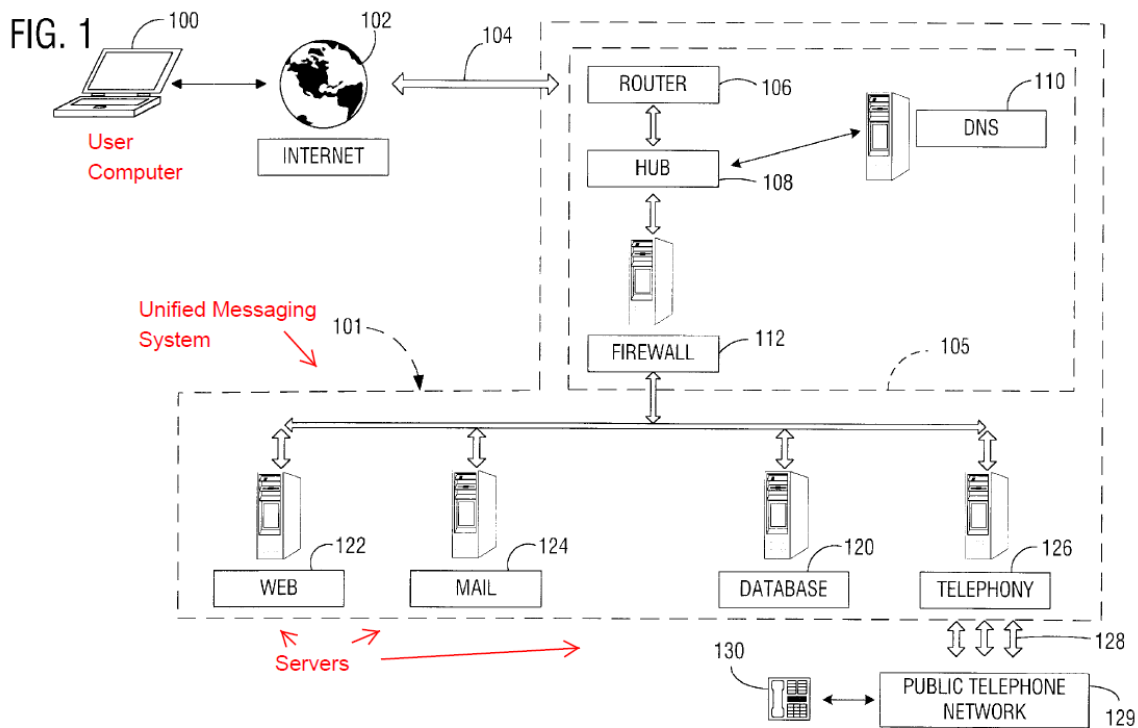


Figure 1 depicts a unified message system.

As shown in Figure 1 of O’Neal above, web server 122 exchanges data with user computer 100 to allow user computer 100 access to unified messaging system (UMS) 101 through an authentication procedure. *Id.* at 8:8–18. After user computer 100 is allowed access, web server 122 obtains from database server 120 current communication option settings for display to the subscriber. *Id.* at 8:18–22. Database server 120 stores subscriber accounts and communication option settings associated therewith. *Id.* at 7:55–57. A subscriber is able to modify features of call forwarding, for example, by selecting a number from a preprogrammed list or adding a number to a pre-programmed list. *Id.* at 5:62–6:9.

Telephony server 126 facilitates communication between public telephone network 129 and UMS 101. *Id.* at 8:41–49. When a subscriber accesses UMS 101 to modify communication option settings, telephony server 126 translates telephone signals such as dialed digits into digital format to modify communication option settings residing in database server 120. *Id.* at 15:10–33. When the subscriber enables call forwarding, telephony server 126 queries database server 120 when a call is received, retrieves the forwarding number from database server 120, and initiates an outgoing call to the forwarding number on another port. *Id.* at 17:11–33. After the outgoing call successfully connects, telephony server 126 connects the port of the incoming call with the port of the outgoing call to complete the end-to-end connection. *Id.* at 17:33–49.

3. *Discussion of Independent Claim 1—Anticipation by Shtivelman*

Claim 1 of the ‘113 Patent recites “a web enabled processing system . . . coupled to a call processing system serving as an intelligent

interconnection between at least one packet network and a second network . . . the call processing system coupled to at least one switching facility of the telecommunications network.” As discussed above, we interpret “switching facility” as “any switch in the telecommunication network.” *See supra* § II.D. Additionally, we interpret “coupled to” as “both a direct and indirect connection.” *Id.*

For the limitation “web enabled processing system,” which includes “one or more web servers coupled to” the call processing system, Petitioner points to Shtivelman’s disclosure of the processing system shown in Figure 1 reproduced *supra* Section III.C.1 that includes ISP 130 having web servers, as well as other web servers, for example, in Internet 101 (also referred to as Cloud 101). Pet. 37–39 (citing *e.g.*, Fig. 1).<sup>12</sup> Dr. Lavian testifies that Shtivelman discloses that its processing system communicates through the Web and uses well known Web features, such as Web browser plug-ins. Ex. 1002 ¶¶ 88, 90–92, *cited in* Pet. 37–39.

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<sup>12</sup> For the limitations recited in claim 1, Petitioner contends it relies on various embodiments of Shtivelman. Pet. 35–44. The use of the “embodiments,” however, reflects merely discussion of details regarding one of the components within the system or discussion of an alternative that varies only slightly from that previously described. Each of the disclosures relied upon by Petitioner describes Figure 1 or the operation of Figure 1. Figure 1 illustrates expansive networks, including the PSTN and the Internet that provide different services to many subscribers, using various devices illustrated by example (Ex. 1005, Fig. 1). Our anticipation determination takes into consideration Shtivelman’s disclosures and Dr. Lavian’s testimony of the understanding of one having ordinary skill as to these disclosures. Patent Owner does not dispute Petitioner’s reliance on what Petitioner and Shtivelman refer to as different embodiments.

Patent Owner does not dispute Petitioner's showing as to Shtivelman's disclosure of "one or more web servers" in the "web enabled processing system," as recited in claim 1. Upon review of Petitioner's explanation and supporting evidence, we determine that Petitioner has shown sufficiently that Shtivelman discloses the claimed "one or more web servers."

The parties' dispute centers on whether Shtivelman discloses "the call processing system coupled to at least one switching facility," recited in claim 1. PO Resp. 54–56. Petitioner takes the position that the combination of Shtivelman's server 142 and switch 141 is the claimed call processing system coupled to at least one switching facility recited in claim 1. Pet. 36 (citing *e.g.*, Ex. 1005, 3:21–27, 6:3–9, 7:1–16, 7:28–8:16, Fig. 1). With respect to the "switching facility," within PSTN 100, Petitioner points to Shtivelman's disclosure that "switch 151 is 'exemplary of switches in the PSTN.'" *Id.* at 42 (citing Ex. 1005, 7:6–9, Fig. 1). Petitioner contends "Shtivelman discloses that switch 141 and server 142 of the call processing system are connected (in fact, directly connected) to switch 151." *Id.* (citing Ex. 1005, Fig. 1). Petitioner also argues that server 142 "will control" and "will direct" PSTN switch 151. Pet. 36 (citing *e.g.*, Ex. 1005, 3:21–27, 6:3–9, 7:1–16, 7:28–8:16, Figs. 1, 2).

We turn to Patent Owner's contentions. Patent Owner counters that switch 151 "is an edge switch" because it is connected to client premises 110 via an ISDN or analog/digital line. PO Resp. 55–56. Patent Owner acknowledges Petitioner's alternative argument that even under Patent Owner's overly narrow interpretation of "switching facility," Shtivelman meets the claim recitation. *Id.* at 56. Patent Owner, however, argues only

that Petitioner’s alternative also fails because the recitation of “coupled to” requires a direct connection. *Id.* Patent Owner also acknowledges Petitioner’s contention that “switch 141 and server 142” are “the claimed ‘call processing system,’” and that “they are *directly coupled to* switch 151—the claimed ‘switching facility.’” *Id.* at 55 (emphasis added). Patent Owner does not dispute that Shtivelman discloses a direct connection between switch 151 and the call processing system, i.e., switch 141 and server 142. *Id.* at 54–56.

Patent Owner’s arguments and Mr. Bates’ supporting testimony are premised on Patent Owner’s proposed narrow interpretation of “switching facility” and “coupled to.” *See, e.g., id.* at 54–56; Ex. 2022 ¶¶ 79, 80. As discussed above, we decline to construe “switching facility” to exclude an edge switch, and decline to require a *direct connection* between the call processing system and a tandem switch. *See supra* § II.A. Accordingly, we are not persuaded by Patent Owner’s arguments and its expert’s testimony.

Rather, we determine that Petitioner has shown sufficiently that Shtivelman’s server 142 and switch 141 is the claimed call processing system coupled to at least one switching facility recited in claim 1. Shtivelman’s Figure 1 illustrates that switch 141 and server 142 are connected to switch 151, within PSTN 100. Ex. 1005, Fig. 1. We also are persuaded by Petitioner’s contentions that the call processing system, i.e., telephony switch 141 and server 142 provides intelligent interconnection between PSTN 100 and Internet 101. Pet. 35–41 (citing *e.g.*, Ex. 1005, 3:21–27, 6:3–9, 6:14–19, 7:1–9:16, 10:26–11:4, 11:10–12:24, 15:1–13, 15:20–26, 16:9–11, 17:13–18:3, Figs. 1, 2; Ex. 1002 ¶¶ 90–95).

More specifically, as Petitioner correctly contends (*id.*), Shtivelman discloses telephone calls received by switch 151 in PSTN 100 that are connected intelligently through a packet network, i.e., Internet 101. For instance, Shtivelman discloses “via switch 151 the client may place telephone calls via telephone 111 to virtually anywhere on the planet.” Ex. 1005, 7:6–7. Shtivelman discloses that the client “may also connect” through the PSTN and an Internet Service Provider (ISP)<sup>13</sup> “to the Internet network, indicated by network cloud 101.” *Id.* at 7:6–9. Upon receipt of a PSTN call, Shtivelman discloses that “T-Server 142” will “direct” the PSTN telephony switch 151 to forward the PSTN call to the telephony switch 141, and the telephony switch 141 will then “convert” the PSTN call to a Voice over IP call and direct it over the network. *Id.* at 12:9-15. With respect to converting and completing the call over the Internet, Shtivelman, more specifically, discloses “[t]elephon[e] switch 141 has an IP telephony interface” that converts incoming calls “into digital Internet protocol telephone calls,” such that “the call can be received by customer 110 in the form of an Internet phone call to PC 112.” *Id.* at 8:3–16; *see also id.* at 11:1–4 (“From this point operation is the same” “with incoming calls being converted at the IP interface associated with switch 141 to TCP/IP [Transfer Control Protocol/Internet Protocol] and routed to the client via connection 136 and ISP 130.”) As such, we agree with Dr. Lavian’s testimony that one of ordinary skill in the art would have understood that switch 141 and server

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<sup>13</sup> As shown in Figure 1, ISP 130 is a network including the call processing system, i.e., switch 141 and server 142, which is connected to switch 151 of the telecommunication network, i.e., the PSTN.

142 of Shtivelman serve as an intelligent interconnection between PSTN 100 and Internet 101. Ex. 1002 ¶ 94 (cited in Pet. 41).

Furthermore, contrary to Patent Owner’s contentions (PO Resp. 54–56), Petitioner has shown sufficiently that Shtivelman’s call processing system, i.e., switch 141 and server 142 is “coupled to at least one switching facility of the telecommunications network.” As illustrated in Figure 1 of Shtivelman, the components of the call processing system, i.e., switch 141 and server 142 are connected to PSTN switch 151 by lines 154 and 153, respectively. Ex. 1005, Fig. 1; *see also id.* at 8:1–2 ([I]ncoming calls . . . are routed via line 154 to switch 141.); 12:9–11 (“[S]witch 151 is connected to CTI-server 142 via a CTI link 153 (Fig. 1) and T-Server 142 may thereby monitor and direct activities of switch 151 directly.”) Shtivelman discloses that “[t]elephony switch 151 is exemplary of switches in the PSTN.” *Id.* at 7:6. We, therefore, agree with Dr. Lavian’s testimony that one of ordinary skill in the art would have understood that switch 151 is a switching facility of the PSTN and the connection between switch 151 and the call processing system, i.e., switch 141 and server 142, satisfies “coupled to” recited in claim 1. Ex. 1002 ¶ 99, *cited in Pet.* 43. We credit Dr. Lavian’s testimony because it is consistent with Applicants’ definition that “switching facilities” include “[a]ny point in the switching fabric of converging networks, also referred to in industry as a . . . gateway. . . intercarrier connection point, trunk gateway, hybrid switch, etc.” (Ex. 2005, 82, 82 n.1), our claim construction—“any switch in the telecommunication network,”—and the term’s plain and ordinary meaning (Ex. 1008, 391; Ex. 1009).

In light of the evidence before us, we determine that Petitioner has shown sufficiently that Shtivelman’s server 142 and switch 141 is the

claimed “call processing system,” recited in claim 1 and that switch 141 and server 142 are “coupled to” switch 151, i.e., “at least one switching facility,” recited in claim 1.

Patent Owner does not submit separate, specific arguments for other elements recited in claim 1. PO Resp. 54–56. Petitioner again relies on Shtivelman’s Figure 1 and provides a showing of every element recited in claim 1 in the system illustrated in Figure 1 and related disclosures describing the operation of that system. Pet. 35–44. Upon consideration of Petitioner’s explanation and supporting evidence, we determine that Petitioner provides sufficient evidence, including Dr. Lavian’s testimony, to show that Shtivelman discloses those other claim elements. *Id.* at 29–44.

For instance, we are persuaded by Petitioner’s showing for the recitation in the preamble of claim 1 reproduced below.

[T]he telecommunications network comprising edge switches for routing calls from and to subscribers within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, the method for enabling voice communication from a calling party to a called party across both the packet network and the second network.

Ex. 1001, 12:35–43.

Petitioner contends that PSTN 100 is the claimed telecommunications network comprising edge switches for routing calls from and to subscribers within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas. Pet. 41–43 (citing *e.g.*, Ex. 1005, 7:1–9:16, Fig. 1; Ex. 1002 ¶¶ 93–95, 97, 99–101). Regarding the edge switches and other switches, Petitioner explains “[t]he PSTN inherently includes an interconnected network of edge



switches and other switches including tandem switches.” *Id.* at 43. This is consistent with the evidence of record. In particular, both parties provided evidence that the PSTN comprised a hierarchical arrangement of equipment including edge switches and other switches. *See, e.g.*, Pet. 11–12 (citing Ex. 1002 ¶¶ 36–40); PO Resp. 4–8 (citing Ex. 2022 ¶¶ 36–39). Dr. Lavian testifies the PSTN “is the world’s collection of interconnected circuit-switching telephone networks” and “[t]elephone calls have been made over the PSTN in the United States for over a century.” Ex. 1002 ¶¶ 36, 37. Dr. Lavian further testifies “the PSTN uses a hierarchy of switches,” and, more specifically “a five-level hierarchy,” that includes “edge or end (class 5), toll or tandem (class 4), primary (class 3), sectional (class 2) and regional (class 1).” *Id.* ¶¶ 39, 40. Additionally, Patent Owner does not dispute Petitioner’s inherency contentions including that the PSTN comprised a hierarchical arrangement of equipment including edge switches and other switches and, indeed, Mr. Bates testifies that the PSTN comprises the same five-level hierarchy. *See, e.g.*, PO Resp. 54–56; Ex. 2022 ¶¶ 36–39.

With respect to Shtivelman’s disclosure of enabling a call across both the packet network and the telecommunications network, Petitioner again points to Shtivelman’s Figure 1 illustrating Internet 101 and PSTN 100, as well as corresponding description of routing a call from PSTN 100 received by telephony switch 151 across Internet 101 to personal computer 112. Pet. 29–32, 39–41 (citing Ex. 1005, 3:21–27, 5:7–16, 6:3–9, 6:14–19, 7:1–9:16, 9:24–10:4, 12:3–62, 15:1–13, 15:20–26, 16:9–11, 17:13–18:3, Figs. 1, 2; Ex. 1002 ¶¶ 93–95). Dr. Lavian testifies that server 142 directs switch 151 to forward the call to switch 141, which converts the call to a VoIP call so that it can be sent across the Internet. Ex. 1002 ¶ 94. We credit Dr. Lavian’s

testimony as it is consistent with Shtivelman's disclosure of the operation of server 142 (directing switch 151 to forward the call) and switch 141 (converting the call). *See, e.g., id.* at 12:9-15. Additionally, Dr. Lavian testifies that Shtivelman discloses completing the IP call to the client over the Internet. *Id.* We again credit Dr. Lavian's testimony as it is consistent with Shtivelman's disclosure, for example, "[n]ow converted to one of several Internet formats" "the call can be received by customer 110 in the form of an Internet phone call to PC 112." Ex. 1005, 8:13-16; *see also id.* at 9:3-17 (describing sending an alert signal "over the Internet to the client at computer station 112" and "[w]hen the client accepts the call, the system completes the IP call to the client via link 136, sub-net 131, and the client's Internet connection.")

For the limitation "receiving call data which is associated with a call originated by the calling party via either the packet network or the second network, at the call processing system," recited in claim 1, Petitioner points to call data, such as the telephone number, transmitted to complete the call. Pet. 41-42 (citing Ex. 1005, 7:1-9:16, Fig. 1; Ex. 1002 ¶ 97). Dr. Lavian testifies that "telephone calls on the PSTN include not just voice communication, but also signaling information, such as the destination telephone number" and, more specifically, that "associated call data" includes "the dialed telephone number." Ex. 1002 ¶ 97. We credit Dr. Lavian's testimony as it is consistent with Shtivelman's disclosure, for example, of a "dialing string" (Ex. 1005, 7:24) and "destination number data arriving at switch 141" (*id.* at 8:20).

For the limitation "the calling party using a communications device to originate the call for the purpose of initiating voice communication," recited

in claim 1, Petitioner explains that the caller uses telephone 116 to place a PSTN call. Pet. 42 (citing Ex. 1005, 7:14–19). Each of Shtivelman’s telephone 116 (Ex. 1005, 7:14–16) and telephone 111 (*id.* at 7:7) is a communication device that originates a call by a calling party.

For the limitation “the call processing system processing the call across both the packet network and the second network to complete the call to the called party,” and “establishing the voice communication between the calling party and the called party after the call is completed, across both the packet network and the second network,” recited in claim 1, Petitioner’s contentions overlap those previously discussed. For instance, Petitioner explains that switch 141 of the call processing system receives the call from the PSTN 100 and sends it across the Internet to complete the call to the called party at computer 112. Pet. 43 (citing Ex. 1005, 7:1–9:16, Fig. 1). Petitioner explains further that when the called party at computer 112 accepts the call, the call is completed and voice communication is established between the caller and the called client across PSTN 100 and the Internet. *Id.* at 44 (citing Ex. 1005, 7:1–8:23, 9:3–16, 13:3–12, Fig. 1).

As discussed above, Shtivelman’s Figure 1 illustrates Internet 101 and PSTN 100, Shtivelman routing a call from telephony switch 151 in PSTN 100 across Internet 101 to personal computer 112. *See, e.g.*, Ex. 1005, 7:1–9:16, 9:24–10:4, 12:3–62, Fig. 1). We credit Dr. Lavian’s testimony that server 142 directs switch 151 to forward the call to switch 141, which converts the call to a VoIP call (Ex. 1002 ¶ 94) as it is consistent with Shtivelman’s disclosure of the operation of server 142 (directing switch 151 to forward the call) and switch 141 (converting the call) (Ex. 1005, 12:9-15). We again credit Dr. Lavian’s testimony that Shtivelman discloses

completing the IP call to the client over the Internet (Ex. 1002 ¶ 94) as it is consistent with Shtivelman’s disclosure, for example, “[n]ow converted to one of several Internet formats . . . the call can be received by customer 110 in the form of an Internet phone call to PC 112.” Ex. 1005, 8:13–16; *see also id.* at 9:3–16 (describing sending an alert signal “over the Internet to the client at computer station 112” and “[w]hen the client accepts the call, the system completes the IP call to the client via link 136, sub-net 131, and the client’s Internet connection.”).<sup>14</sup>

Based on the evidence before us, we determine that Petitioner has demonstrated sufficiently that Shtivelman discloses each limitation recited in claim 1.

4. *Discussion of Independent Claim 1—Obviousness over Shtivelman and O’Neal*

Petitioner contends “to the extent that it is argued that Shtivelman does not disclose the web-related features of claim 1 . . . those features are disclosed by O’Neal.” Pet. 66. Petitioner provides alternate grounds, as well as reasons to modify Shtivelman with O’Neal and other knowledge of a person of ordinary skill in the art that is supported by the testimony of Dr. Lavian (Ex. 1002), as well as other evidence. *Id.* at 60–62, 66–68 (citing Ex. 1001, 2:51–54; 1003, 1:52–57, 7:29–8:2, 8:8–22, 8:41–9:9, 9:20–30, 9:55–58, 11:40–51, 12:16–26, 13:12–13, 15:14–43, 17:11–49, 18:18–22, 19–1–8, Figs. 1, 3, 4, 7; Ex. 1015, 1:10–17; Ex. 1002 ¶¶ 135–38, 154–55).

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<sup>14</sup> Shtivelman describes a completed end-to-end call from the PSTN caller to “PC 112 running an instance of an IPA 113,” and that the conversion process involves formatting that “depends on the client’s Internet phone application (IPA) 113.” *Id.* at 8:14–16.

Regarding the web-related features of claim 1, as discussed *supra* Section III.C.3, claim 1 is directed to “a web enabled processing system . . . coupled to a call processing system.” Petitioner contends that O’Neal provides additional teachings for this limitation. *Id.* at 66. For instance, Petitioner points to O’Neal’s disclosure of the processing system shown in Figure 1 reproduced *supra* Section III.C.2 that includes UMS 101 with “web server 122” and telephony server 126 that processes calls. Pet. 48–49 (citing *e.g.*, Ex. 1003, 8:8–22, 16:35–64, Fig. 1). Dr. Lavian testifies that UMS 101 is web-enabled and includes web server 122 connected to telephone server 126 that processes calls. Ex. 1002 ¶ 113 (cited in Pet. 49). We credit Dr. Lavian’s testimony as it is consistent with O’Neal’s disclosure, for example, that “[w]eb server 122 represents one of the system-side servers (i.e., a server that handles the exchange of data with the user’s computer via the data-centric network).” Ex. 1003, 8:10–12; *see also id.* at 16:38–39 (“a data-centric network [ ] such as the Internet.”)

Petitioner also explains that O’Neal provides additional detailed teachings regarding selections for special call features, such as call waiting or call forwarding, that are made by subscribers using, for example, web server 122 and that are used, for example, by telephone server 126 to handle incoming calls. *See, e.g.*, Pet. 66–67 (citing 1003, 8:8–22, 8:41–9:9, 9:20–30, 9:55–58, 11:40–51, 15:14–43, 17:11–49, Figs. 1, 3, 4, 7). For instance, Petitioner contends that O’Neal teaches use of a web server to view and change “communication option settings,” such as call forwarding that are used by telephony server 126 to “decide how to handle the message.” *Id.* Additionally, Dr. Lavian testifies when a call to a subscriber is received by telephony server 126 of UMS 101, the telephony server translates that

telephone signal into digital data and “employs the digital data to decide how to handle the [call] using the communication option settings obtained from the subscriber communication profile database.” Ex. 1002 ¶ 113 (citing Ex. 1003, 8:41–9:9, 13:10–15). We credit Dr. Lavian’s testimony as it is consistent with O’Neal’s disclosure, for example, “telephony server 126 employs the digital data to decide how to handle the message using the communication option settings obtained from the subscriber communication profile database.” Ex. 1003, 8:63–66. Patent Owner does not dispute Petitioner’s showing as to O’Neal’s teachings discussed above relating to O’Neal’s teaching of a web enabled processing system. PO Resp. 58–64.

In addition to O’Neal being like Shtivelman in that both disclose web-enabled call processing, O’Neal also is similar to Shtivelman in that O’Neal’s UMS 101 with telephony server 126 is connected to a switching facility in PSTN 129. Ex. 1003, 9:10–19, Fig. 1 (cited in Pet. 52–53). Additionally, like Shtivelman, O’Neal discloses that the call processing system, i.e., UMS 101 with telephony server 126, provides intelligent interconnection between PSTN 129 and Internet 102. Pet. 48–51 (citing *e.g.*, Ex. 1003, 8:41–9:9, 9:55–58, 11:40–51, 13:10–15, 15:14–43, 18:18–22, 19:1–8; Ex. 1002 ¶ 116). Accordingly, one of ordinary skill in the art would have had a reasonable expectation of success in combining the teachings.

We now turn to Petitioner’s reasons to combine the teachings of Shtivelman and O’Neal. Citing to Dr. Lavian’s testimony for support, Petitioner asserts that an ordinary skilled artisan would have implemented O’Neal’s web server 122 with stored communication options in Shtivelman’s call processing system because it would add the ability for a client to set options, which had known advantages. Pet. 66–68 (citing Ex.

1003, 1:52–57, 7:29–8:2, 8:8–22, 8:41–9:9, 9:20–30, 9:55–58, 11:40–51, 12:16–26, 15:14–43, 17:11–49, Figs. 1, 3, 4, 7; Ex. 1005, 7:29–8:2, 12:16–26, Ex. 1002 ¶¶ 154–55). Consistent with Petitioner’s contentions (*id.*), O’Neal teaches, for example, that its system relates to “allow[ing] a subscriber . . . [to] customize his communication options, in an interactive and simplified manner” (Ex. 1003, 1:52–57). These subscriber communication option settings “reside in the subscriber profile database,” which is stored by database server 120 and are used to provide intelligent interconnection between PSTN 129 and Internet 102. Pet. 48–51 (citing *e.g.*, Ex. 1003, 8:41–9:9, 9:55–58, 11:40–51, 13:10–15, 15:14–43, 18:18–22, 19:1–8; Ex. 1002 ¶ 116).

Based on the entirety of the record before us, we determine that Petitioner has established sufficiently that the combination of Shtivelman and O’Neal teaches or suggests all the limitations of claim 1. Also, upon consideration of Petitioner’s analysis and supporting evidence including Dr. Lavian’s testimony, we are persuaded that Petitioner has articulated sufficient reasons to combine the prior art teachings of Shtivelman and O’Neal in the manner recited in claim 1.

##### 5. *Conclusion—Claim 1*

Based on the evidence in the entire trial record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 1 is unpatentable (1) under § 102(b) as anticipated by Shtivelman; and (2) under § 103(a) as obvious over Shtivelman in combination with O’Neal.

##### 6. *Discussion of Dependent Claims 2, 8, 11, and 15–19*

We turn to discussion of the dependent claims and, more specifically, the instituted grounds as follows: (1) claims 2, 8, 15, 18, and 19 are

unpatentable under § 102(b) as anticipated by Shtivelman; and (2) claims 2, 8, 11, and 15–19 are unpatentable under § 103(a) as obvious over Shtivelman in combination with O’Neal. Dec. on Inst. 32. Each of claims 2, 8, 11, and 15–19 depends directly or indirectly from independent claim 1. On this record, we agree with Petitioner’s showing that each of Shtivelman alone or in combination with O’Neal discloses the further recitations of these dependent claims.

*a. Claim 2*

Starting with claim 2, which depends directly from claim 1, for the further limitation “wherein either the calling or the called party is a subscriber of the web enabled processing system,” recited in claim 2, Petitioner points to Shtivelman’s disclosure that the recipient subscribes to Shtivelman’s service. Pet. 44 (citing Ex. 1005, 7:29–8:2); Ex. 1002 ¶ 104. Dr. Lavian testifies that one of ordinary skill in the art would have understood that Shtivelman discloses that the client who receives calls (the called party) subscribes to the Shtivelman’s call-waiting service. Ex. 1002 ¶ 104. We credit Dr. Lavian’s testimony (*id.*) as it is consistent with Shtivelman’s disclosure of routing calls designated for the called party (the client) based on routing rules set when “subscribing to the service.” Ex. 1005, 7:29–8:2, 9:29–10:2. Patent Owner does not submit separate, specific arguments for claim 2. PO Resp. 49–57. Based on the evidence before us, we determine that Petitioner has demonstrated sufficiently that Shtivelman discloses each limitation recited in claim 2. For these same reasons, and the reasons set forth *supra* Section III.C.4, we also determine that claim 2 is obvious over the combination of Shtivelman and O’Neal.



*b. Claim 8*

Claim 8 depends directly from claim 2 and further recites

identifying one or more control criteria associated with the subscriber, wherein the one or more control criteria had been previously provided to the web server, and completing the call in accordance with the control criteria associated with the subscriber and establishing the voice communication only in accordance with the control criteria.

Petitioner takes the position that Shtivelman's routing rules are the claimed "control criteria associated with the subscriber." Pet. 45 (citing Ex. 1005, 7:29–8:2; Ex. 1002 ¶ 105). Dr. Lavian testifies that one of ordinary skill in the art would have understood that Shtivelman discloses that the client sets routing rules when subscribing to the service. Ex. 1002 ¶ 105.

Patent Owner contends that "Shtivelman does not disclose that the control criteria '[have] been previously provided to the web server.'" PO Resp. 50. Additionally, Patent Owner contends that Shtivelman does not disclose that the control criteria are used to establish the voice communication across the packet network. *Id.* at 53–54.

Claim 8 recites that the control criteria are "provided to the web server," and then the call is "complet[ed]" "in accordance with the control criteria." Claim 8 also recites "establishing the voice communication only in accordance with the control criteria." These recitations in claim 8 are consistent with an embodiment described in the '113 Patent Specification. Specifically, subscriber 12 "interacts with the web 22 via the Internet to quickly and easily specify the enhanced 3<sup>rd</sup>-party call control features." Ex. 1001, 5:22–24. Those specifications are then relayed to TAC 10. *Id.* at 5:24–25; *see also id.* at 5:38–39 (describing that a "public internet portal" is

used “or some other interface system”). The ’113 Patent Specification describes providing call control criteria to a web server, and then the call processing unit completes the call in accordance with the control criteria. *Id.* The ’113 Patent Specification also describes the call features as including call forwarding and screening, which can be implemented “using known software techniques since such features are known.” *Id.* at 5:26–34.

Regarding Patent Owner’s contention that Shtivelman does not disclose that the control criteria have been previously provided to the web server (PO Resp. 50), we are persuaded the Petitioner’s showing is sufficient. We credit Dr. Lavian’s testimony (*see, e.g.*, Ex. 1002 ¶ 105) as it is consistent with Shtivelman’s disclosure of forwarding incoming calls for telephone 111 to switch 141 (Ex. 1005, 7:29–8:2) so that the calls are routed based on routing rules set when “subscribing to the service” (*id.* at 9:29–10:2). Also, we credit Dr. Lavian’s testimony that control criteria are previously provided to the web server (Ex. 1002 ¶ 105) as it is consistent with the operation of Shtivelman’s system that uses these control criteria, discussed with respect to claim 1 *supra* Section III.C.3, as well as more specific disclosure, for example, of allowing clients to register and provide information using ISP 130 shown in Figure 1. Ex. 1005, 10:5–10.

We turn to the parties’ dispute regarding “completing the call in accordance with the control criteria associated with the subscriber” and “establishing the voice communication only in accordance with the control criteria,” recited in claim 8. Both parties turn to contentions relating to claim 1, from which claim 8 depends, indirectly. PO Resp. 53–54; Reply 22–23 (citing Pet. 37–38, 45). As we discussed above with respect to claim 1 *supra* Section III.C.3, similar limitations recited in claim 1 are met by

Shtivelman's disclosures. Petitioner takes the position that these disclosures, along with those discussed above of entering the control criteria and using it to perform the aforementioned routing are sufficient to meet the further recitations of claim 8. Pet. 45; Reply 22–23. Petitioner provides as support the testimony of Dr. Lavian that the user information is received via the Internet and is used to perform specialized features, such as call forwarding. Pet. 37–38, 45 (citing Ex. 1002 ¶¶ 90, 91, 105). We credit Dr. Lavian's testimony as it is consistent with Shtivelman's disclosure, for example, of redirecting calls via the Internet and performing specialized features, for example, call waiting using the specified control criteria. Ex. 1005, 6:3–9, 6:14–19, 7:1–9:16, 10:26–11:4, 11:10–12:2, 12:16–26, *cited in* Pet. 38. Based on the evidence before us, we determine that Petitioner has demonstrated sufficiently that Shtivelman discloses each limitation recited in claim 8.

As an additional independent reason for unpatentability of claim 8, as discussed above *supra* Section III.C.4, Petitioner provides contentions that O'Neal provides additional relevant teachings, as well as an articulated reason to combine the teachings of Shtivelman and O'Neal. For instance, citing to Dr. Lavian's testimony for support, Petitioner asserts that an ordinary skilled artisan would have implemented O'Neal's web server 122 with stored communication options in Shtivelman's call processing system because it would add the ability for a client to set options, which had known advantages. Pet. 66–68 (citing Ex. 1003, 1:52–57, 7:29–8:2, 8:8–22, 8:41–9:9, 9:20–30, 9:55–58, 11:40–51, 12:16–26, 15:14–43, 17:11–49, Figs. 1, 3, 4, 7; Ex. 1005, 7:29–8:2, 12:16–26, Ex. 1002 ¶¶ 154–155). Consistent with Petitioner's contentions (*id.*), O'Neal teaches, for example, that its system

relates to “allow[ing] a subscriber . . . [to] customize his communication options, in an interactive and simplified manner” (Ex. 1003, 1:52–57). These subscriber communication option settings “reside in the subscriber profile database,” which is stored by database server 120 and are used to provide intelligent interconnection between PSTN 129 and Internet 102. Pet. 48–51 (citing *e.g.*, Ex. 1003, 8:41–9:9, 9:55–58, 11:40–51, 13:10–15, 15:14–43, 18:18–22, 19:1–8; Ex. 1002 ¶ 116). Patent Owner does not provide further contentions in addition to those already discussed above with respect to Shtivelman. PO Resp. 57–66.

Based on the entirety of the record before us, we determine that Petitioner has established sufficiently that all of the limitations of claim 8 are disclosed by Shtivelman and are taught or suggested by the combination of Shtivelman and O’Neal. Also, upon consideration of Petitioner’s analysis and supporting evidence including Dr. Lavian’s testimony, we are persuaded that Petitioner has articulated sufficient reasons to combine the prior art teachings of Shtivelman and O’Neal in the manner recited in claim 8.

*c. Claim 11*

Regarding claim 11, which depends directly from claim 1, for the further limitation “wherein the web enabled processing system is implemented using a distributed architecture spanning at least two locations,” Petitioner takes the position that O’Neal discloses that its UMS 101 may be implemented in accordance with another patent application directed to an integrated system distributed over a large geographical area. Pet. 56–57 (citing Ex. 1003, 6:10–24). Additionally, relying on the testimony of Dr. Lavian, Petitioner explains that such a distributed architecture was well-known and obvious. *Id.* at 62–63 (citing Ex.

1002 ¶ 140). Dr. Lavian testifies that the PSTN is a “massive distributed architecture” (Ex. 1002 ¶ 140), that the PSTN “is the *world’s* collection of interconnected circuit-switching telephone networks” (*id.* ¶ 36 (emphasis added)), and “[i]n the United States, the PSTN is a *countrywide* network of switches” (*id.* ¶ 37 (emphasis added)). Dr. Lavian further testifies “[u]sing a distributed architecture in two different locations would bring predictable benefits such as redundancy in case of hardware failure at one location, particularly due to an environment reason affecting one location such as a flood.” Ex. 1002 ¶ 140.

We credit Dr. Lavian’s testimony as it is consistent with the evidence of record. For instance, as discussed *supra* Section III.C.3, Shtivelman’s call processing system, i.e., telephony switch 141 and server 142 provides intelligent interconnection between PSTN 100 and Internet 101, which both are networks distributed over large geographic areas. Ex. 1005, Fig. 1. Both parties provide evidence that this PSTN comprises a hierarchical arrangement of equipment including edge switches and other switches that are geographically distributed. *See, e.g.*, Pet. 11–12 (citing Ex. 1002 ¶¶ 36–40); PO Resp. 4–8 (citing Ex. 2022 ¶¶ 36–39).

Patent Owner does not submit separate, specific arguments for claim 11. PO Resp. 65–66. Based on the entirety of the record before us, we determine that Petitioner has established sufficiently that the combination of Shtivelman and O’Neal teaches or suggests all of the limitations of claim 11. Also, upon consideration of Petitioner’s analysis and supporting evidence including Dr. Lavian’s testimony, we are persuaded that Petitioner has articulated sufficient reasons to combine the prior art teachings of Shtivelman and O’Neal in the manner recited in claim 11.

*d. Claim 15*

Regarding claim 15, which depends directly from claim 1, for the further limitation “wherein the call originated by the calling party via the second network is facilitated using VoIP,” Petitioner contends that Shtivelman’s call processing system, i.e., switch 141 and server 142 facilitates routing the digital Internet call, i.e., the VoIP call over the Internet. Pet. 45–46 (citing Ex. 1005, 2:8–27, 5:13–17, 6:3–21, 7:1–9:16, Fig. 1; Ex. 1002 ¶ 106). Dr. Lavian testifies that one having ordinary skill in the art would have understood that in Shtivelman the call originating in the PSTN “is facilitated by being routed to the user’s computer 112 over the internet as a Voice over IP call.” Ex. 1002 ¶ 106. We credit Dr. Lavian’s testimony as it is consistent with the evidence of record including for example, Shtivelman’s disclosure that “PSTN telephone calls” “may be converted to IP calls and connected to the client.” Ex. 1005, 6:15–19. Additionally, Dr. Lavian’s testimony is consistent with Shtivelman’s disclosure that switch 141 “has an IP telephony interface” that converts calls “into digital Internet protocol telephone calls using a Transfer Control Protocol / Internet Protocol (TCP/IP) format.” *Id.* at 8:2–5.

Petitioner also shows sufficiently that claim 15 would have been obvious over the combination of Shtivelman and O’Neal. As discussed *supra* Section III.C.3, Petitioner has shown sufficiently that claim 1, from which claim 15 depends, is obvious over the combined teachings of Shtivelman and O’Neal, and Petitioner provides sufficient reasoning to combine the teachings of these references. In addition to Shtivelman’s disclosures above, regarding the further recitation in Claim 15 that processing is “facilitated using VoIP,” Dr. Lavian testifies that any

modification of the combined teachings of Shtivelman and O’Neal to use VoIP technology would have been obvious to one having ordinary skill in the art, and provides supporting explanation and evidence. Ex.

1002 ¶¶ 145–149. For instance, Dr. Lavian testifies that VoIP and VoIP products “were well known at the time of the invention.” *See, e.g.*, Ex.

1002 ¶ 142. Dr. Lavian also testifies that Voice over IP (VoIP) “is the transmission of voice that has been converted into digital packets of data using the Internet Protocol,” for communications that “take place over the internet” (*id.* ¶ 47), and that completing a VoIP call across the Internet would have been known to a person having ordinary skill in the art (*id.* ¶¶ 45–52). We credit Dr. Lavian’s testimony (*id.*) as it is consistent with evidence of record including the evidence cited in his Declaration. Ex. 1001, 2:51–54; Ex. 1015, 1:10–17; 2:33–50, 5:30–49; Ex. 1018. For instance, the ’113 Patent Specification describes VoIP products in the background section. *See, e.g.*, Ex. 1001, 2:51–54.

Additionally, Dr. Lavian testifies that one of ordinary skill in the art would have used VoIP to be compatible with VoIP products that were available at the time. Ex. 1002 ¶¶ 145–149. We credit Dr. Lavian’s testimony as it is consistent with the evidence of record, including the evidence discussed above (that VoIP was well-known), the ’113 Patent Specification’s description of VoIP products (Ex. 1001, 2:51–54) and O’Neal’s description of a computer and telephone with software to enable digital/Internet telephony (Ex. 1003, 19:1–8). Additionally, Dr. Lavian’s testimony that one having ordinary skill in the art would have used VoIP with the Shtivelman and O’Neal system is consistent with O’Neal’s teaching

that its intelligent interconnection functions “without regard to the communication devices and/or networks employed.” Ex. 1003, 18:18–22.

Patent Owner does not submit separate, specific arguments for claim 15. PO Resp. 65–66. Based on the entirety of the record before us, we determine that Petitioner has established sufficiently that all of the limitations of claim 15 are disclosed by Shtivelman and are taught or suggested by the combination of Shtivelman and O’Neal. Also, upon consideration of Petitioner’s analysis and supporting evidence including Dr. Lavian’s testimony, we are persuaded that Petitioner has articulated sufficient reasons to combine the prior art teachings of Shtivelman and O’Neal in the manner recited in claim 15.

*e. Claim 16*

Regarding claim 16, which depends directly from claim 15, for the further limitation, “wherein the call is originated and completed using VOIP, but has at least one leg through the second network,” as discussed *supra* Section III.C.6.d with respect to claim 15, this would have been an obvious modification to the combined teachings of Shtivelman and O’Neal. For instance, Shtivelman describes that switch 141 “has an IP telephony interface” that converts calls “into digital Internet protocol telephone calls using a Transfer Control Protocol / Internet Protocol (TCP/IP) format.” Ex. 1005, 8:2–5. Additionally, Shtivelman describes “[n]ow converted to one of several Internet formats, the call can be received by customer 110 in the form of an Internet phone call to PC 112.” *Id.* at 8:13–16. Furthermore, as discussed *supra* Sections III.C.3 and III.C.6.d with respect to claims 1 and 15, each of Shtivelman and O’Neal describes completing calls across the



PSTN and Petitioner provides sufficient reasons for combining VoIP teachings with those of Shtivelman and O'Neal.

Patent Owner does not submit separate, specific arguments for claim 16. PO Resp. 65–66. Based on the entirety of the record before us, we determine that Petitioner has established sufficiently that all of the limitations of claim 16 are taught or suggested by the combination of Shtivelman and O'Neal and that Petitioner has articulated sufficient reasons to combine the prior art teachings of Shtivelman and O'Neal in the manner recited in claim 16.

*f. Claim 17*

We turn to claim 17, which recites the further limitation “wherein the call processing system is located within a local service area corresponding to the specified recipient.” Petitioner contends, for example, that it would be obvious to locate the call processing system within a local service area corresponding to the specified recipient. *See, e.g.*, Pet. 65–66 (citing Ex. 1002 ¶ 150). Patent Owner contends that Petitioner relies on inherency, with respect to the anticipation contentions, and does not provide separate contentions for obviousness. PO Resp. 56, 57, 64. Based on the entire record before us, Petitioner’s contentions that claim 17 would have been obvious over Shtivelman and O'Neal are supported sufficiently by the testimony of Dr. Lavian and other evidence of record.

*g. Claims 18 and 19*

Claim 18 recites the further limitation “wherein the call processing system is configured as a tandem access controller,” and claim 19 recites the further limitation “wherein the tandem access controller is coupled to and operates in conjunction with at least one of the switching facilities located

within the telecommunications network.” As discussed *supra* Section II.F with respect to claim construction, we determine that the broadest reasonable interpretation of “tandem access controller” encompasses examples set forth in the ’113 Patent Specification including the example of a processor that does not connect to subscribers directly. Shtivelman’s switch 141 and server 142 connect to PSTN 100 and cloud 101, and do not include any direct (i.e., hardwire) connection to a subscriber. Ex. 1005, Fig. 1. Similarly, O’Neal’s UMS 101 and telephony server 126 connect to a subscriber through Internet 102 or public telephone network 129, not via a direct (i.e., hardwire) connection. Ex. 1003, Fig. 1. Accordingly, each of Shtivelman and O’Neal discloses a call processing system configured as a tandem access controller, as set forth in an exemplary embodiment in the ’113 Patent Specification. *See supra* § II.F; Ex. 1001, 5:3–5, 6:48–53; Dec. on Inst. 16–18, 29–30. For this reason alone we are persuaded that Petitioner’s showing is sufficient.

Additionally, as discussed *supra* Section III.C.3, we agree with Petitioner’s contentions (Pet. 47) and Dr. Lavian’s testimony (Ex. 1002 ¶¶ 108–11) that Shtivelman discloses that switch 141 and server 142 are directly connected to switch 151, which is one of the switching facilities within the PSTN. Ex. 1005, Fig. 1, 12:16–26. As discussed *supra* Section III.C.4, we also agree with Petitioner’s contentions (Pet. 58–60) and Dr. Lavian’s testimony (Ex. 1002 ¶¶ 130–34) that O’Neal’s UMS 101 is connected to a switching facility in the PSTN. Ex. 1003, Fig. 1, 9:10–19. We credit Dr. Lavian’s testimony that Shtivelman, alone or in combination with O’Neal, discloses, teaches, or suggests the limitations recited in claims 18 and 19. Ex. 1002 ¶¶ 108–11, 130–34, 151–56. For example, his testimony regarding coupling such a controller at a tandem switch, which is

a switching facility within the PSTN, is consistent with the evidence of record, including the evidence cited therein. *Id.*<sup>15</sup>

For the further limitation “wherein the tandem access controller is coupled to and operates in conjunction with at least one of the switching facilities located within the telecommunications network,” recited in claim 19, as discussed *supra* Sections III.C.3 and III.C.4, the call processing system of Shtivelman is connected in the PSTN and operates in conjunction with the PSTN. In particular, Shtivelman’s call processing system, i.e., switch 141 and server 142 is connected in the PSTN, with a direct connection to PSTN switch 151, and operates in conjunction with PSTN 100. *See supra* §§ III.C.3, III.C.4. Similarly, O’Neal’s UMS 101 connects with and operates in conjunction with public telephone network 129. *Id.* Petitioner’s remaining contentions regarding claims 18 and 19 for anticipation and obviousness are consistent with the evidence cited therein.

Importantly, Patent Owner’s contentions are premised on adoption of its interpretations of *both* terms disputed by Patent Owner. More specifically, Patent Owner’s contentions are premised on its overly narrow

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<sup>15</sup> We further note that in other proceedings also involving challenges to the ’113 Patent, Patent Owner’s declarant testified that it was well known to interconnect an IP carrier network and the PSTN at a tandem switch. *See* IPR2016-01261, Ex. 1059, 201:22–202:11 (In response to the question, “when two telephone networks interconnect each other, they do not do it through class 5 switches . . .,” Mr. Bates answered, “They’re doing it inside the network at their tandem access.”), 205:15–206:16 (In response to the question, “what would be the connecting node between an IP carrier and the PSTN,” Mr. Bates answered “It would be out at the higher level switch level, like a tandem switch where they would probably have an optical cable run out of one of their high end switches with an IP interface, talking to that IP carrier.” (emphasis added)), 211:21–213:14.

interpretation of *both* the term “tandem access controller” and “coupled to,” which we do not adopt for the reasons set forth *supra* Sections II.E and II.F. PO Resp. 57, 64–66. Based on the entirety of the record before us, we determine that Petitioner has established sufficiently that all of the limitations of claims 18 and 19 are disclosed by Shtivelman and are taught or suggested by the combination of Shtivelman and O’Neal. Also, upon consideration of Petitioner’s analysis and supporting evidence including Dr. Lavian’s testimony, we are persuaded that Petitioner has articulated sufficient reasons to combine the prior art teachings of Shtivelman and O’Neal in the manner recited in claims 18 and 19.

7. *Conclusion— Dependent Claims 2, 8, 11, and 15–19*

Based on the evidence in the entire trial record, we determine that Petitioner has demonstrated by a preponderance of the evidence that (1) claims 2, 8, 15, 18, and 19 are unpatentable, under § 102(b), as anticipated by Shtivelman; and (2) claims 2, 8, 11, and 15–19 are unpatentable, under § 103(a), as obvious over Shtivelman in combination with O’Neal.

8. *O’Neal (Anticipation and Obviousness)*

Based on Petitioner’s contentions in the Petition, we instituted on additional grounds as follows: (1) claims 1, 2, 8, 18, and 19 are unpatentable under § 102(e) as anticipated by O’Neal; and (2) claims 1, 11, and 15–17 are unpatentable under § 103 as obvious over O’Neal. Dec. on Inst. 32. In light of our other unpatentability determinations based on Shtivelman, we take no position on whether these same claims are also anticipated by or obvious over O’Neal alone.

*D. Patent Owner's Motion to Amend*

We have concluded that the challenged claims of the '113 Patent are unpatentable. Therefore, we address Patent Owner's contingent motion to enter proposed substitute claim 183. Mot. 1; Ex. 2062.<sup>16</sup> For the reasons that follow, Patent Owner's motion is *denied*.

We first turn to the United States Court of Appeals for the Federal Circuit's en banc decision in *Aqua Products*. The Federal Circuit remanded the case "for the Board to issue a final decision under § 318(a) assessing the patentability of the proposed substitute claims without placing the burden of persuasion on the patent owner." 872 F.3d at 1296. Judge Reyna's opinion in *Aqua Products* stated "a majority of the court interprets § 316(e) to be ambiguous as to the question who bears the burden of persuasion in a motion to amend claims." *Id.* at 1335. Part III of Judge Reyna's opinion stated that "Part III of this opinion sets forth the judgment of this court on what the Board may and may not do with respect [to] the burden of production on remand in this case," and "[t]here is no disagreement that the patent owner bears a burden of production in accordance 35 U.S.C. § 316(d)." *Id.* at 1340–41; *see also, e.g., id.* at 1305–06 (explaining that "patent owner must satisfy the Board that the statutory criteria in § 316(d)(1)(a)–(b) and

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<sup>16</sup> Proposed substitute claim 183 in the instant proceedings is the same as proposed substitute claim 183 in IPR2016-01261. *Compare* Ex. 2062 with IPR2016-01261, Ex. 2062. In the final decision entered in IPR2016-01261, we determine based on a preponderance of the evidence that proposed substitute claim 183 is unpatentable, under 35 U.S.C. § 103(a), as obvious over (1) Archer in combination with the knowledge of a person of ordinary skill in the art; and (2) Archer in combination with Chang.

§ 316(d)(3) are met and that any reasonable procedural obligations imposed by the Director are satisfied”).

On November 21, 2017, the Office provided guidance on motions to amend in view of *Aqua Products*. See “Guidance on Motions to Amend in view of *Aqua Products*” (Nov. 21, 2017) ([https://www.uspto.gov/sites/default/files/documents/guidance\\_on\\_motions\\_to\\_amend\\_11\\_2017.pdf](https://www.uspto.gov/sites/default/files/documents/guidance_on_motions_to_amend_11_2017.pdf)). As discussed therein, in addition to the requirements of 35 U.S.C. § 316(d), a motion to amend must meet the requirements of 37 C.F.R. § 42.121.

For the reasons explained below, we conclude that Patent Owner’s Motion to Amend does not satisfy the requirements of 37 C.F.R. § 42.121(b)(1) because it does not set forth written description support for proposed substitute claim 183. Additionally, we determine that proposed substitute claim 183 is unpatentable, under 35 U.S.C. § 103(a), as obvious over Shtivelman in combination with O’Neal, by a preponderance of the evidence based on the evidence in the entire trial record.

*1. Proposed Substitute Claim*

Proposed substitute claim 183 is set forth below, with changes shown in redline.

183. A method performed by a web enabled processing system including one or more web servers coupled to a ~~call processing system~~tandem access controller serving as an intelligent interconnection between at least one packet network and a second network coupled to a ~~switching facility~~particular PSTN tandem switch of a PSTN telecommunications network, ~~the~~wherein the second network is a network of PSTN tandem switches, the PSTN telecommunications network comprising ~~edge switches for routing~~a plurality of edge switches connected to telephones on one side and PSTN tandem switches on the

other side, wherein the PSTN tandem switches includes the particular PSTN tandem switch, wherein the edge switches route calls from and to subscribers within a local geographic area and switching facilities for routing the PSTN tandem switches route calls to other the edge switches or other switching facilities the PSTN tandem switches local or in other geographic areas, the method for enabling voice communication from a calling party to a called party across both the packet network and the second network, the method comprising the steps of:

wherein the PSTN tandem switches are not the edge switches, wherein the PSTN tandem switches are not directly connected to any of the telephones, the method for enabling voice communication of a call from a calling party to a called party across both the packet network and the second network, wherein the called party is a subscriber, the method comprising the steps of:

receiving, at the tandem access controller, a first call request and call data which is associated with a first call originated by the calling party via either the packet network or the second network, at the call processing system, the calling party using a communications device to originate the first call request for the purpose of initiating voice communication, the call processing system to the subscriber, the tandem access controller coupled to at least one switching facility the particular PSTN tandem switch of the PSTN telecommunications network via the second network, the wherein communications between the tandem access controller and the particular PSTN tandem switch occur without passing through any edge switches, the tandem access controller processing a second call processing system processing the call request associated with a second call across both the packet network and the second network to complete the call to the called party subscriber; and

establishing the voice communication between the calling party and the called party subscriber, by the tandem access controller, after the second call is completed and answered, across both the packet network and the second network.

Ex. 2062.

2. *Discussion—Written Description*

We start our analysis with Patent Owner’s proposed amendments to the “establishing” limitation: “establishing the voice communication between the calling party and the subscriber, *by the tandem access controller* after the second call is completed *and answered*, across both the packet network and the second network.” Ex. 2062 (emphasis added). Petitioner contends that Patent Owner does not point to any written description support for the proposed amendments to this limitation. Oppn. 8.

An amendment may not enlarge the scope of the claims of the patent or introduce new matter. 35 U.S.C. § 316(d)(3). In connection with its motion to amend, a patent owner must set forth “support in the original disclosure of the patent for each claim that is added or amended.” 37 C.F.R. § 42.121(b)(1). We first address whether Patent Owner’s Motion to Amend sets forth how the original application provides written description support for the amended claims. The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to a person of ordinary skill in the art that the inventor had possession at that time of filing of the claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991); *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983). One shows that one is “in possession” of the invention by describing the invention, with all its claimed limitations, not that which



makes it obvious. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997); *In re Wertheim*, 541 F.2d 257, 262 (CCPA 1976).

Patent Owner argues that “[s]upport for the Substitute Claim from the original disclosure of the patent . . . is provided in Ex. 2041” (a claim listing). Mot. 4. Besides referring to two paragraphs in Ex. 2040 (Bates’ Declaration), the motion provides no further explanation for the entirety of proposed substitute claim 183. *Id.* at 4–5. While Patent Owner is correct that we authorized it to file an appendix with a claim listing showing text of the specification alongside corresponding citations, Patent Owner was not excused from setting forth how the original disclosure provides written description support for the amended claims. Paper 23, 3 (“[w]e cautioned that Patent Owner should not include in its appendix any argument or characterizations in support of written description”). In other words, Patent Owner was implicitly instructed to put arguments or characterizations in support of written description not in the appendix, but rather in its motion.

We turn to Patent Owner’s listing of written description support for proposed substitute claim 183. Ex. 2041. In Exhibit 2041, Patent Owner lists the amended claim in one column, and the alleged support beside the claim language. For the ’119 Application,<sup>17</sup> Patent Owner provides combined contentions for “processing a second call request” and “establishing the voice communication,” without explanation as to how the identified disclosures pertain to these two different steps. Ex. 2041, 13–15.

For the disputed limitation and the “processing” step, Patent Owner directs our attention to several figures and paragraphs of the ’119

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<sup>17</sup> U.S. Patent Application No. 12/821,119 (“the ’119 Application”).

Application, without further explanation. Ex. 2041, 13–15. We first consider the '119 Application disclosures of Figures 1, 2, 7, and 8 identified by Patent Owner. Ex. 2041, 13. These portions of the '119 Application pertain to the connection between the tandem access controller and the tandem switch, not processing or establishing performed by the tandem access controller. Ex. 2066, Figs. 1, 2, 7, 8. Each of Figures 1, 2, 7, and 8 illustrates only a physical connection between the hardware, i.e., the tandem access controller and the tandem switch. *Id.* at Figs. 1, 2, 7, 8. Figure 1 illustrates an incoming arrow and an outgoing arrow. *Id.* at Fig. 1. These figures, however, are silent with respect to how the tandem access controller would perform the step of “establishing the voice communication between the calling party and the subscriber.” *Id.*

Patent Owner also identifies as written description support Figure 5 and, in particular, “Box 11” of Figure 5. Ex. 2041, 13. Figure 5 of the '119 Application illustrates a flow chart including receipt of the incoming SS7 request from the tandem office (*id.* at Fig. 5 (Box 2)) and sending a SS7 call request to the PSTN tandem switch (*id.* at Fig. 5 (Box 11)), but with respect to establishing voice communication between the calling party and the subscriber, after the second call is completed and answered, across both the packet network and the second network, Figure 5 is silent (*id.* at Fig. 5 (Boxes 1–15)). Other than Boxes 2 and 11, Figure 5 indicates only “[c]onnect this outbound call to original inbound call,” without explanation as to whether the second call is completed and answered. *Id.* at Fig. 5 (Box 14).

Patent Owner, additionally, points to textual description in the '119 Application for both the “processing” and “establishing” steps. Ex. 2041,

13–15 (citing Ex. 2066, 8:28–9:13, 9:20–25, 10:15, 10:31–11:15, 11:17–19, 11:31). These disclosures describe the PSTN directing the call to the tandem access controller and the tandem access controller calling the subscriber and connecting the calls, but do not describe establishing voice communication between the calling party and the subscriber after the second call is completed and answered. *See, e.g.*, Ex. 2066, 8:28–9:13, 9:20–25, 11:17–19. Similarly, deficient is the ’119 Application disclosure that “TAC 10 links the two calls and monitors the connection,” without mentioning whether the second call is completed and answered. *Id.* at 11:31. Other disclosures identified by Patent Owner do not pertain specifically to establishing the voice communication but, instead, more generally indicate that voice over IP may be used in the invention. *See, e.g.*, Ex. 10:15, 10:31–11:5.

One of the disclosures indicates “[w]hen the subscriber 12 *terminates (or answers)* the second call, the TAC 10 *terminates the first call and connects it to the second call*, thereby connecting the calling party 20 to the subscriber 12.” Ex. 2066, 9:4–8 (emphases added). We agree with Petitioner (Oppn. 8) that “terminates (or answers)” is not disclosure of “completed and answered,” set forth in Patent Owner’s proposed amendment. By using the conjunctive “or,” the ’119 Application presents two alternatives, i.e., terminating or answering. This is in contrast to the proposed amendment, which requires establishing voice communication after two events occur, i.e., after the second call “is completed *and answered.*” Ex. 2062 (emphasis of proposed amendment added).

The second of the emphasized phrases, i.e., the “TAC 10 *terminates the first call and connects it to the second call*” (Ex. 2066, 9:5–7) is silent as

to whether voice communication is established after “the second call is completed *and answered*,” as required in the amendment. Ex. 2062 (emphasis added). Both the functions of terminating and connecting pertain at least in part to the first call, not just the second call, and neither is answering.

We have considered Patent Owner’s argument that because a call being “completed” was in the original claim, there can be no “controversy that a call (first or second call) is completed when the call has been answered in order to establish voice communication.” Reply 11 (citing Ex. 2070 ¶ 79). We are not persuaded by this argument. While we agree that the original claim recites “after the call is completed,” the proposed substitute claim changes the scope of that phrase to “after the second call is completed and answered.” Thus, the “establishing the voice communication” between the parties does not occur until the second call is both completed and answered. Mr. Bates’ testimony (Ex. 2070 ¶ 79) is the same as Patent Owner’s contention and his testimony “[t]here cannot be any controversy” (*id.*) is conclusory. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”) We agree with Petitioner, therefore, that Patent Owner’s Motion to Amend fails to sufficiently set forth where the original disclosure provides written description support for establishing the voice communication after the second call is both *completed and answered*.

While *ipsis verbis* support for claim terms is not necessary, it is incumbent upon the Patent Owner to set forth where the original disclosure provides written description support for the new limitation in the substitute

claim. Patent Owner has not done so with respect to “establishing the voice communication between the calling party and the subscriber, by the tandem access controller, after the second call is *completed and answered*, across both the packet network and the second network,” as set forth in proposed substitute claim 183. Ex. 2062 (emphasis added).

The ’119 Application, including the figures, omits many details, for example, of the standardized SS7 signaling protocol and standard infrastructure in the PSTN, relying instead on the knowledge of the skilled artisan. *See, e.g.*, Ex. 2066, 16:15–21 (relying on global standard for details of how information, including caller ID, is provided), Figs. 1, 2, 7, 8 (omitting for example signaling transfer points and related connections).<sup>18</sup> That establishing voice communications was known to one of ordinary skill in the art, however, is not a substitute for disclosure in the ’119 Application of the proposed amendment. *See Lockwood*, 107 F.3d at 1571–72 (“It is the disclosures of the applications that count. Entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed.”)

In support of its Motion to Amend, Patent Owner proffers the declaration of Mr. Bates. Ex. 2040. For the most part, however, Patent Owner does not rely on the testimony of Mr. Bates in its contentions regarding written description support for its substitute claim. In particular, Patent Owner includes only a single citation to Mr. Bates’ testimony. Mot.

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<sup>18</sup> Dr. Lavian testifies that SS7 signaling is performed in accordance with the industry standard that uses signaling transfer points (STPs). Ex. 1002 ¶ 44 (citing Ex. 1017); *see also* Ex. 1017, 1–4 (describing SS7 signaling and use of STPs).

4–5 (citing Ex. 2040 ¶¶ 45–46). Mr. Bates’ testimony, however, is conclusory. Ex. 2040 ¶¶ 45–46. He simply points to Figures 2 and 5, as well as column four, line 55 to column five, line three of the ’113 Patent Specification. *Id.* To the extent that corresponding disclosures in the ’119 Application are identified by Patent Owner as relevant, they are discussed above. He also testifies one of ordinary skill in the art would have known of local tandem switches. *Id.* His testimony does not remedy the aforementioned deficiencies.

In conclusion, we determine that Patent Owner’s Motion to Amend does not set forth that the original disclosure provides written description support for the aforementioned phrase. 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii) and (b)(1). For this reason alone, Patent Owner’s Motion to Amend is *denied*.

### 3. Discussion—Unpatentability

As a separate, independent reason, we also determine based on a preponderance of the evidence that proposed substitute claim 183 is unpatentable at least under 35 U.S.C. § 103(a) as obvious over Shtivelman in combination with O’Neal. As discussed *supra* Section III.C.4, Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable, under 35 U.S.C. § 103(a), as obvious over Shtivelman in combination with O’Neal. Patent Owner contends that the newly added limitations indicate that the tandem access controller is associated with a tandem switch, not an edge switch to eliminate “the possibility” that the tandem access controller “is connected through an edge switch with the tandem switch.” Mot. 2–4.

Communications between the tandem access controller and the PSTN tandem switch would have been well-known to one having ordinary skill in

the art.<sup>19</sup> To try to distinguish over the asserted prior art, Patent Owner adds the requirement that these communications “occur without passing through any edge switches.” Ex. 2062. Additionally, Patent Owner adds that “the tandem access controller” is coupled to “the particular PSTN tandem switch.” *Id.*

As discussed *supra* Section III.C.3, we agree with Petitioner’s contentions (Pet. 47) and Dr. Lavian’s testimony (Ex. 1002 ¶¶ 108–11) that Shtivelman discloses that switch 141 and server 142 (tandem access controller) are directly connected to switch 151, which is one of the switching facilities within the PSTN. Ex. 1005, Fig. 1, 12:16–26. As discussed *supra* Section III.C.4, we also agree with Petitioner’s contentions (Pet. 58–60) and Dr. Lavian’s testimony (Ex. 1002 ¶¶ 130–34) that O’Neal’s UMS 101 (tandem access controller) is connected to a switching facility in the PSTN. Ex. 1003, Fig. 1, 9:10–19.

Petitioner provides an articulated reason, with rational underpinning for modifying these teachings such that “the tandem access controller” is coupled to “the particular PSTN tandem switch” and communications between that controller and switch “occur without passing through any edge switches” (Ex. 2062). Oppn. 20–21 (citing Ex. 1045 ¶ 123). For instance, relying on the testimony of Dr. Forys, Petitioner asserts that an ordinary skilled artisan would have been motivated to make such a modification

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<sup>19</sup> As discussed *supra* Section III.C.3 and Section III.C.4, Petitioner has shown sufficiently that Shtivelman’s call processing system communicates with exemplary PSTN switch 151 (Ex. 1005, Fig. 1) and that O’Neal’s UMS 101 with telephony server 126 is connected to and communicates with a switching facility in PSTN 129 (see, e.g., Ex. 1003, 8:41–9:19, 9:55–58, 11:40–51, 13:10–15, 15:14–43, Fig. 1, *cited in* Pet. 48, 52–53).

because it would have been well-known that edge switches were susceptible to congestion or, in the alternative, to simply provide more efficiency in eliminating the edge switch, particularly for large organizations. *Id.* (citing Ex. 1031, 3, 10; Ex. 1030, 1:32–48, 4:26–30; Ex. 1027, 7:52–56; Ex. 1045 ¶ 122). We credit Dr. Forys’ testimony (Ex. 1045 ¶ 122) as it is consistent with the evidence of record. Ex. 1031, 3, 10 (“Frequently congestion is localized.”); Ex. 1030, 1:32–48, 4:26–30 (describing alleviating congestion at terminating end office switch); Ex. 1027, 7:52–56 (describing connection between PBX and toll switch via dedicated line).

Also relying on the testimony of Dr. Forys, Petitioner asserts that an ordinary skilled artisan would have had a reasonable expectation of success. *Id.* at 21 (citing Ex. 1045 ¶ 123). We credit Dr. Forys’ testimony (Ex. 1045 ¶ 122) as it is consistent with the evidence cited therein, as well as other evidence of record. For instance, as discussed above, the communications within the PSTN used well-known SS7 signaling. Ex. 1002 ¶¶ 43–44; Ex. 1001, 4:49–53, 7:59–65; Ex. 2022 ¶ 40; Ex. 1001, 4:49–53, 7:59–65. Additionally, Dr. Forys’ testimony is consistent with the ’113 Patent Specification’s description of coupling the tandem access controller to a PSTN tandem switch as nothing more than a “simple” “telephone circuit.” *Id.* at 6:49–50. Furthermore, the ’113 Patent Specification describes the “tandem access controller” as “implemented using *conventional* processor hardware” (*id.* at 6:48–49 (emphasis added)), comprising software that “*well within* the capability of those skilled in the art” to devise (*id.* at 6:52–53 (emphasis added)), and providing “control features” that “are generally *already known*” (*id.* at 6:54–55 (emphasis added)).



Other recitations added or modified by Patent Owner's amendment are directed to only known technologies, and we refer to our discussion *supra* Sections III.C.3, III.C.4, and III.C.6.g. For instance, Patent Owner asserts it more specifically identifies the telecommunications network as a PSTN network and a called party as a subscriber (Mot. 2–3), but the PSTN was well-known, and it was well-known to have callers and called parties subscribe to services. Patent Owner also asserts that it adds other limitations pertaining to PSTN tandem switches to make explicit restrictions on claim scope, but these limitations simply restrict the claim to a tandem access switch that was well-known in the PSTN. Additionally, as discussed *supra* Section III.C.6.g, for example, with respect to dependent claims 18 and 19, “tandem access controller” was disclosed by Shtivelman and taught by O’Neal. Patent Owner asserts its amendment adds other narrowing limitations, but these limitations simply recite functions performed by well-known SS7 signaling and VoIP protocol, and are substantially the same as the original limitations recited in claim 1.

In its Reply, Patent Owner contends that it would not have been obvious to modify O’Neal with Blaze, Burke, or Fuentes. PO Reply 9. Patent Owner’s contentions pertain to the purported inadequacy that each of Blaze, Burke, and Fuentes describe edge devices. *Id.*

We, however, look to O’Neal’s teachings regarding UMS, and for the reasons set forth *supra* Section III.C.4, for example, we are persuaded that O’Neal teaches that UMS 101 is connected to a switching facility within the PSTN. Dr. Forys testifies as to why one of ordinary skill in the art would have connected UMS 101 (the tandem access controller) to a tandem switch, rather than an edge switch, within the PSTN. Ex. 1045 ¶¶ 120–23. We

credit Dr. Forys' testimony that the skilled artisan would be motivated to connect UMS 101 to a tandem switch to reduce congestion and gain efficiency because these reasons are consistent with the evidence, as set forth above. Patent Owner does not provide other responsive contentions regarding the combined teachings of Shtivelman and O'Neal or Petitioner's arguments and evidence regarding modification of these teachings discussed above. *See generally* PO Reply (citing Ex. 2070). Therefore, neither Patent Owner's Reply nor Mr. Bates' Reply Declaration undermines the prior art showing and other evidence of obviousness in this record.

Accordingly, we determine based on a preponderance of the evidence that proposed substitute claim 183 is unpatentable, under 35 U.S.C. § 103(a), as obvious over Shtivelman in combination with O'Neal. For this additional reason, Patent Owner's Motion to Amend is *denied*.

#### 4. *Conclusion—Motion to Amend*

Based on the evidence in the entire trial record, we determine that Patent Owner's Motion to Amend does not set forth that the '119 Application provides written description support for proposed substitute claim 183. Additionally, based on the evidence in the entire trial record, we determine based on a preponderance of the evidence that proposed substitute claim 183 is unpatentable, under 35 U.S.C. § 103(a), as obvious over Shtivelman in combination with O'Neal. Accordingly, Patent Owner's Motion to Amend is *denied*.

#### IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has established by a preponderance of the evidence that the challenged claims of the '113 Patent are unpatentable based on the following grounds:

Challenged Claims	Basis	Reference(s)
1, 2, 8, 15, 18, and 19	§ 102(b)	Shtivelman
1, 2, 8, 11, and 15–19	§ 103	Shtivelman and O'Neal

Additionally, we determine that (1) Patent Owner's Motion to Amend does not set forth that the '119 Application provides written description support for proposed substitute claim 183; and (2) based on a preponderance of the evidence in the entire trial record, proposed substitute claim 183 is unpatentable, under 35 U.S.C. § 103(a), as obvious over Shtivelman in combination with O'Neal.

V. ORDER

Accordingly, it is:

ORDERED that claims 1, 2, 8, 11, and 15–19 of the '113 patent have been proven to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend is *denied*; 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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