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Paper No. 34
Date: August 8, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JUNIPER NETWORKS, INC.,
Petitioner,

v.

CORRECT TRANSMISSION, LLC,
Patent Owner.

IPR2021-00469
Patent 7,983,150 B2

Before TERRENCE W. McMILLIN, JOHN R. KENNY, and STEPHEN E. BELISLE, *Administrative Patent Judges.*

KENNY, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining No Challenged Claims Unpatentable
Dismissing Petitioner's Motion to Exclude
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

Juniper Networks, Inc. ("Petitioner") filed a Petition requesting *inter partes* review of claims 1–5, 8–15, and 18–20 ("the challenged claims") of U.S. Patent No. 7,983,150 B2 (Ex. 1001, "the '150 patent"). Correct Transmission, LLC ("Patent Owner") filed a Preliminary Response. Paper 7 ("Prelim. Resp.").

On August 9, 2021, we instituted an *inter partes* review of all challenged claims. Paper 10 ("Institution Decision" or "Inst. Dec."). Patent Owner filed a Patent Owner Response (Paper 15, "PO Resp."). Petitioner filed a Reply (Paper 18, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 20, "PO Sur-reply").

Petitioner filed a Motion to Exclude certain cross-examination testimony of its expert witness, Dr. Yaling Yang (Paper 25, "Mot. Excl."). Patent Owner filed an Opposition to Petitioner's Motion to Exclude (Paper 26), and Petitioner filed a Reply to Patent Owner's Opposition to Patent Owner's Motion to Exclude (Paper 29). A transcript of an oral hearing held on May 10, 2022 (Paper 33, "Tr.") has been entered into the record.

We have jurisdiction under 35 U.S.C. § 6. For the reasons discussed below, and constrained by the record before us, we determine that Petitioner has not shown, by a preponderance of the evidence, that any of claims 1–5, 8–15, and 18–20 is unpatentable.

B. Related Proceedings

Correct Transmission, LLC v. Juniper Networks, Inc., No. 3:21-cv-9284-JD (N.D. Cal.); and *Correct Transmission, LLC v. Adtran, Inc.*, No. 5:21-cv-690 (N.D. Ala..) involve the '150 patent. Paper 24, 1.

C. The '150 Patent

The '150 patent is entitled "VPLS Failure Protection in Ring Networks" and issued on July 19, 2011, from an application filed on January 18, 2006. Ex. 1001, codes (22), (45), (54).

The '150 patent is directed to "providing failure protection mechanisms that can respond to and overcome . . . VPLS [virtual private local area network service] failure scenarios" in bi-directional ring networks that cause, *inter alia*, VPLS segmentation. Ex. 1001, 2:42–53.

Challenged claims 1 and 11 of the '150 patent are independent and are reproduced below, with bracketed sub-paragraphing for claim elements:

> 1. [pre] A method for communication over a bi-directional ring network that includes nodes connected by spans of the ring network, the method comprising:
>
> [1.1] provisioning a virtual private local area network service (VPLS) to serve users over the bi-directional ring network, the VPLS comprising connection termination points provisioned respectively on a plurality of the nodes so as to connect each of the plurality of the nodes to a second network external to the ring network;
>
> [1.2] activating a selected connection termination point, to establish a connection between the bi-directional ring network and the second network;
>
> [1.3] as long as the nodes and spans are fully operational, maintaining all of the connection termination points except the selected connection termination point in a deactivated state, so that only the selected connection termination point to the second network is active;

[1.4] exchanging messages among the nodes indicative of: a failure in at least two spans of the ring network causing a segmentation of the ring network and leading to an isolation of a first node of the ring network from at least one second node of the ring network; and

[1.5] responsively to the messages, activating at least one of the deactivated connection termination points so as to overcome the segmentation and maintain connectivity of the first node with the at least one second node of the ring network, without creating a loop in the VPLS via the second network.

11. [pre] A system for communication, comprising

[11.1] nodes connected by spans so as to define a bi-directional ring network, over which a virtual private local area network service (VPLS) is provisioned to serve users, the VPLS comprising connection termination points provisioned respectively on a plurality of the nodes so as to connect each of the plurality of the nodes to a second network external to the ring network,

[11.2] with a connection established between the bi-directional ring network and the second network via a selected connection termination point in an activated state,

[11.3] wherein as long as the nodes and spans are fully operational, all of the connection termination points except the selected connection termination point are maintained in a deactivated state, so that only the selected connection termination point to the second network is active, and

[11.4] wherein the nodes are arranged to exchange messages indicative of: a failure in at least two spans of the ring network causing a segmentation of the ring network and leading to an isolation of a first node of the ring network from at least one second node of the ring network; and

[11.5] responsively to the messages, to activate at least one of the deactivated connection termination points so as to overcome the segmentation and maintain connectivity of the first node with the

> at least one second node of the ring network, without creating a loop in the VPLS via the second network.

Ex. 1001, 9:31–58, 10:56–11:15.

D. Asserted Grounds of Unpatentability and Expert Testimony

Petitioner challenges the patentability of claims 1–5, 8–15, and 18–20 on the following grounds:

Claims Challenged	35 U.S.C. §	References
1–5, 8–15, 18–20	103(a)	Togazaki,[1] Voit[2]
1–5, 8–15, 18–20	103(a)	Sultan,[3] Togazaki

Pet. 2.

Petitioner submits a declaration from its expert, Dr. Yaling Yang (Ex. 1003), and Patent Owner submits a declaration from its expert, Dr. Robert Akl (Ex. 2011).

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner asserts that an ordinarily skilled artisan would have "a bachelor's degree in electrical engineering, computer engineering, computer science, or a closely related field, and one to two years of experience in the design and development of network communication systems." Pet. 7–8 (citing Ex. 1003 ¶¶ 55–59). Further, Petitioner asserts that "[a]lternatively, [an ordinarily skilled artisan] would have a master's degree or similar post-graduate work in electrical engineering, computer engineering, computer

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[1] JP Pub. No. 2003-258822, published September 12, 2003. Ex. 1005 (certified translation Ex. 1006).
[2] US Pub. No. 2007/0008982 A1, published January 11, 2007. Ex. 1008.
[3] US Pub. No. 2003/0154315 A1, published August 14, 2003. Ex. 1007.

science, or a closely related field, and less years of design and development experience." *Id.* at 8 (citing Ex. 1003 ¶¶ 55–59).

Patent Owner "takes no position with respect to Petitioner's proposed level of skill" and does not offer any alternative characterization. PO Resp. 16. We adopt Petitioner's characterization of the level of ordinary skill, which we determine is consistent with the '150 patent's written description and the asserted prior art.

B. Claim Construction

Neither party proposes that we construe any claim term (Pet. 8; PO Resp. 6), and upon reviewing the record, we determine that it is not necessary to expressly construe any claim term. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.").

C. Asserted Obviousness of Claims 1–5, 8–15, and 18–20 over Togazaki and Voit

Petitioner contends that claims 1–5, 8–15, and 18–20 would have been obvious over Togazaki and Voit. Pet. 8–50. As set forth below, we determine that Petitioner has not proven that an ordinarily skilled artisan would have had a reasonable expectation of success in modifying Togazaki to achieve the recited inventions of claims 1–5, 8–15, and 18–20. Thus, we determine that Petitioner has not proven that claims 1–5, 8–15, and 18–20 would have been obvious over Togazaki and Voit.

1. Togazaki

Togazaki relates to "provid[ing] a packet ring network capable of performing multiple ring connections and performing high speed switching

even while multiple nodes are connected in a redundant ring." Ex. 1006, code (57).

Figure 6 of the certified translation of Togazaki, reproduced below, shows a bi-directional ring network including nodes connected by spans of the ring network:

[Fig. 6]

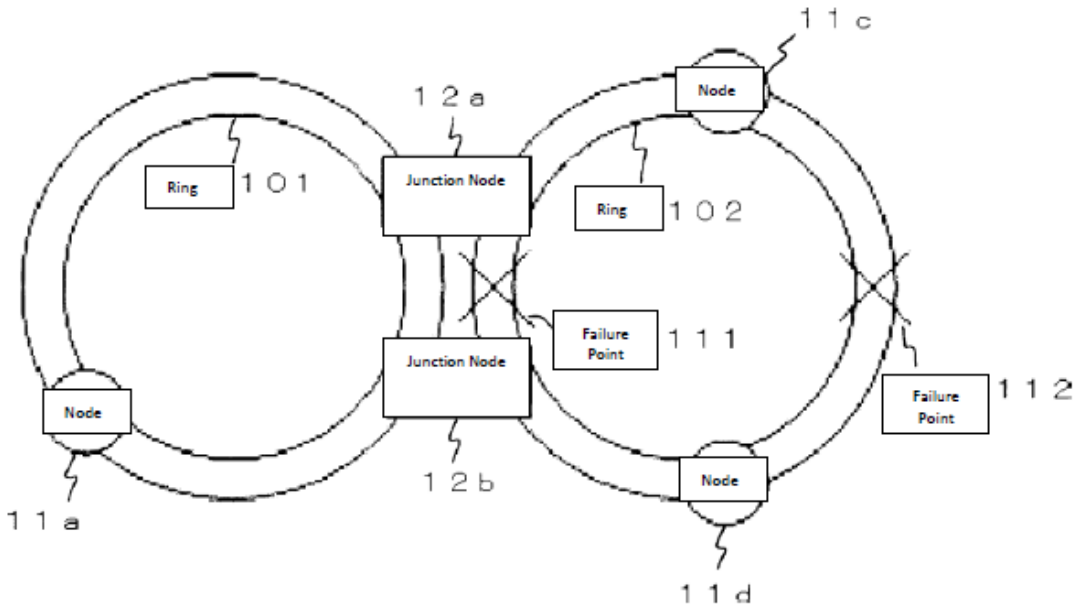

Figure 6 of the certified translation of Togazaki, above, is a diagram showing an example in which a secondary node transitions from a standby state to an active state in a ring network.

As shown above in Figure 6 of the certified translation of Togazaki, Togazaki discloses bi-directional network 102 includes inner and outer rings communicating in opposite directions between nodes 11c–d, 12a–b along the spans. Ex. 1006, Fig. 6. Also shown in Figure 6 above, Togazaki teaches junction nodes 12a, 12b connect ring networks 101, 102, where only node

12a is active "to prevent a broadcast storm caused by . . . duplication of broadcast packets." *Id.* ¶ 26.

Togazaki exchanges messages among the nodes indicating a failure in multiple spans of the ring network causing segmentation of the network and leading to an isolation of a first node from a second node. As illustrated above, Togazaki describes a scenario in which ring network 102 has a failure 111 in the span between nodes 12a and 12b and another failure 112 in the span between nodes 11c and 11d. Ex. 1006 ¶¶ 65–67. Togazaki specifies these two failures result in segmentation of network 102 and isolation of node 11d from nodes 11c, 12a because the "ring packet cannot be received at node 11d by the failure point 111, 112 of ring 102." *Id.* ¶ 67. To prevent this isolation, Togazaki activates junction node 12b to maintain connectivity between node 11d and node 11c via ring network 101. *Id.* ¶ 28.

2. Voit

Voit relates to:

> [a] computer network includ[ing] first and second Ethernet access domain networks, each of Ethernet access domain networks including a user-facing provider edge (u-PE) device, and a stack group of network-facing provider edge (n-PE) devices coupled with the u-PE device, the n-PE devices running a bidding protocol to select one of the n-PE devices as a primary n-PE device for a single pseudowire connection path between the first and second Ethernet access domain networks.

Ex. 1008, code (57). In other words, Voit describes connecting separate multipoint networks to provision one or more VPLS instances. *Id.* at code (57), ¶¶ 3, 24–27. To do so, Voit teaches arranging nodes within each network in a respective "stack." *Id.* ¶¶ 25–27. As shown below, after arranging each stack 25, 35, Voit determines which node should form the connection based on priority criteria, such as load-balancing considerations,

traffic volume, and the number of connections. *Id.* ¶ 31. And as shown below in Figure 2, Voit's connection 51 connects customers 21, 31 across Ethernet access domains 20, 30 and network 11:

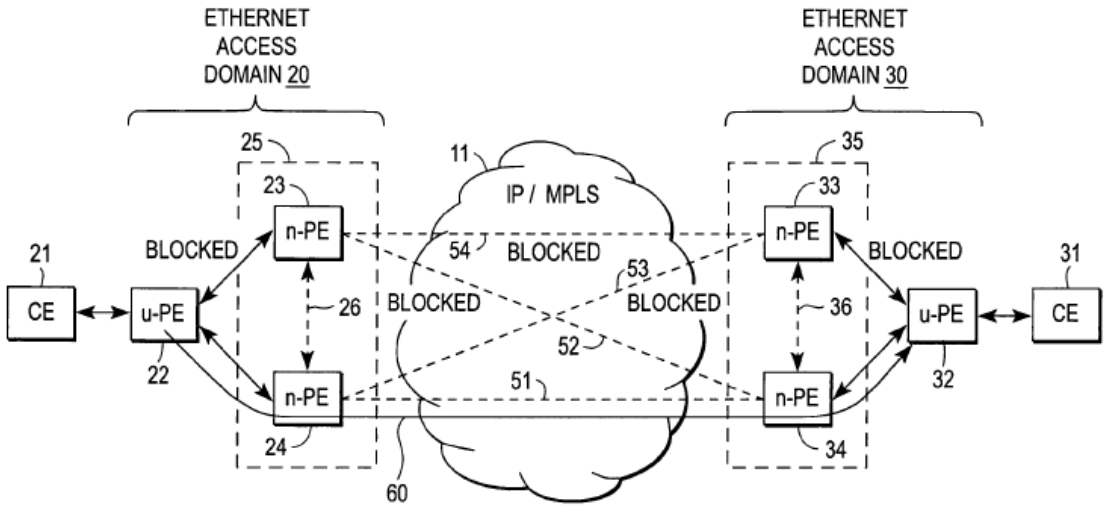

FIG. 2

> Figure 2, above, illustrates an aspect of an exemplary VPLS system with an IP/MPLS core network and separate access network domains.
>
> As shown in Figure 2, above:
>
> PW 51 provides the connection between primary n-PE devices 24 and 34. The end-to-end path across the full SP network, which includes access domains 20 & 30 and IP/MPLS core 11, is depicted by arrow 60 extending between u-PE devices 22 & 32. The remaining PWs 52[–]54 are shown in F[igure] 2 as being blocked, which essentially means that there is no connection path or no PW that is active between the respective devices. Should the primary WAN router change, e.g., due to a failure occur that disables or terminates the PW connection 51, an alternative PW may be activated as a redundant path.

Ex. 1008 ¶ 35.

Voit also teaches that a failure will result in activating a standby connection, such as 54 shown above, between the networks. Ex. 1008 ¶¶ 20, 27. And after rectifying that failure, Voit reactivates the prior connection 51 and deactivates the standby connection. *Id.* ¶ 35.

3. Analysis of Independent Claims 1 and 11

"An obviousness determination requires finding that [an ordinarily skilled artisan] would have been motivated to combine or modify the teachings in the prior art and *would have had a reasonable expectation of success in doing so*." *Regents of Univ. of Cal. v. Broad Inst., Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018) (emphasis added); *see also OSI Pharmaceuticals, LLC v. Apotex Inc.*, 939 F.3d 1375, 1382–85 (Fed. Cir. 2019); *Samsung Electronics Co., Ltd. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1380–83 (Fed. Cir. 2019).

Petitioner argues that "Togazaki discloses every element recited in claims 1 and 11, except that it doesn't expressly disclose provisioning a VPLS." Pet. 11. Petitioner contends that "provisioning a VPLS would have been obvious in view of the general knowledge of [an ordinarily skilled artisan] or in view of Voit's teachings." *Id.* at 11–12. The parties dispute, however, whether Petitioner has proven that an ordinarily skilled artisan would have had a reasonable expectation of success in provisioning a VPLS in Togazaki. PO Resp. 43–46; Pet. Reply 29–33.

We determine that Petitioner has not proven that an ordinarily skilled artisan would have had a reasonable expectation of success in provisioning a VPLS in Togazaki. Neither the Petition nor the declaration from Dr. Yang that accompanied the Petition analyzed whether an ordinarily skilled artisan would have had a reasonable expectation of success in provisioning a VPLS

in Togazaki. Pet. 8–51; Ex. 1003 ¶¶ 66–107, 157–170. Dr. Yang did not submit a second declaration in this proceeding. Pet. Reply (Exhibit List). Nevertheless, Petitioner argues that it proved the requisite reasonable expectation of success with the evidence that it cited in the Petition for other issues (e.g., motivation to combine) including Dr. Yang's declaration testimony on those issues, Dr. Yang's cross-examination testimony, Dr. Akl's cross-examination testimony, and additional evidence that Petitioner cited in its Reply. *Id.* at 29–33.

As set forth below, although we agree with Petitioner that the cited prior art teaches provisioning VPLSs in certain prior art systems, that prior art teaching by itself does not establish a reasonable expectation of success in provisioning a VPLS in Togazaki's system. Further, the expert testimony and other evidence cited by Petitioner fail to prove, by a preponderance of the evidence, that an ordinarily skilled artisan would have had a reasonable expectation of success in provisioning a VPLS in Togazaki's system.

a. The Prior Art Teaches Provisioning VPLSs in Certain Prior Art Systems

We agree with Petitioner that the prior art discloses how to provision a VPLS on certain prior art networks. Pet. Reply 32–33; Ex. 1003 ¶ 64. For example, Voit describes provisioning a VPLS on a network. Ex. 1008 ¶ 6 (describing a "typical VPLS architecture"), ¶ 16 (illustrating "an exemplary VPLS system"). Cohen (Ex. 1017) also describes provisioning a VPLS on a network: "[i]n one embodiment of this invention the multipoint network services provided by the present invention is a *virtual private LAN* service *(VPLS)*." Ex. 1017, code (57) (emphasis added). Zelig (Ex. 1009) further describes provisioning a VPLS: "[u]ser nodes on different physical LANs can thus be joined together through *VPLS* connections to define a virtual

private network (*VPN*), which appears to the users to be a single Ethernet LAN." Ex. 1009 ¶ 7 (emphasis added). The Background section of the '150 patent further discloses that Busi '469 (Ex. 1010) and Busi '268 (Ex. 1011) describe provisioning a VPLS. Ex. 1001, 2:5–11. The '150 patent's Background section further discloses that Kompella (Ex. 1012) and Lasserre (Ex. 1013) describe "[g]eneral methods for creating a *VPLS*." *Id.* at 2:12–16 (emphasis added). In addition, consistent with its description in the '150 patent, Kompella describes that: "*Virtual Private LAN Service (VPLS)* . . . is a useful Service Provider offering." Ex. 1012, 1 (emphasis added). Similarly, Lasserre describes "*Virtual Private LAN Services* over MPLS." Ex. 1013, 1 (emphasis added). In sum, the cited prior art teaches provisioning VPLSs on certain prior art systems.

b. Petitioner Has Not Proven that an Ordinarily Skilled Artisan Had a Reasonable Expectation of Success in Provisioning a VPLS in Togazaki

Although the cited prior art teaches provisioning VPLSs on certain systems, the issue in this proceeding is whether an ordinarily skilled artisan would have had a reasonable expectation of success in provisioning a VPLS on Togazaki's system, not whether an ordinarily skilled artisan would have reasonably expected success in provisioning a VPLS on another system. As set forth below, we determine that Petitioner has not proven that an ordinarily skilled artisan would have had such a reasonable expectation of success.

i. The Parties' Expert Testimony Does Not Demonstrate a Reasonable Expectation of Success of Provisioning a VPLS in Togazaki

Dr. Yang and Dr. Akl each submitted one declaration in this proceeding. Dr. Yang's declaration accompanied the Petition, and Dr. Akl's

declaration accompanied the Patent Owner Response. Exs. 1003, 2011. Petitioner did not submit a responsive expert declaration from Dr. Yang with its Reply. As set forth below, we find that the declaration and cross-examination testimony provided by these experts did not demonstrate that an ordinarily skilled artisan would have had a reasonable expectation of success in provisioning a VPLS in Togazaki.

(a). Dr. Yang's Testimony

As mentioned above, in her declaration, Dr. Yang did not analyze whether an ordinarily skilled artisan would have had a reasonable expectation of success in provisioning a VPLS in Togazaki. *See generally* Ex. 1003. Petitioner argues, however, that testimony that Dr. Yang provided on other issues in her declaration (e.g., motivation to combine) nevertheless demonstrates that an ordinarily skilled artisan would have had the requisite expectation of success. Pet. Reply 29–33. In addition, Petitioner asserts that Dr. Yang's cross examination testimony further demonstrates a reasonable expectation of success. *Id.* We disagree.

As Petitioner notes, Dr. Yang testified in her declaration that modifying Togazaki to provision a VPLS would be an obvious implementation for an ordinarily skilled artisan: "[m]odifying Togazaki's system to provision a VPLS would have led to predictable results given that Togazaki's network provides multipoint connectivity similar to Voit. As such, provisioning a VPLS on Togazaki's system is nothing more than an obvious implementation to [an ordinarily skilled artisan] based on Voit's teachings." Ex. 1003 ¶ 84 (cited by Pet. 13 n.35, which in turn is cited by Pet. Reply 31 n.111). This testimony, however, is conclusory. Dr. Yang did not explain what the similarities between Togazaki's network and Voit are

that would purportedly make provisioning a VPLS on Togazaki an obvious implementation. Thus, we do not find this testimony persuasive. *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1022 (Fed. Cir. 2017) (the Board is "not required to credit [a party's] expert evidence simply because [the party] offered it"); *TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019) ("This court's opinions have repeatedly recognized that conclusory expert testimony is inadequate to support an obviousness determination on substantial evidence review."); *MobileMedia Ideas LLC v. Apple Inc.*, 780 F.3d 1159, 1172 (Fed. Cir. 2015).

As Petitioner notes, during cross-examination, Dr. Yang testified that the modifications required to the packet formatting to provision a VPLS in Togazaki are minor:

> One other thing I would like to say is that: Togazaki has descriptions of the packet header format that looks very similar to VPLS. But when you look at VPLS in-depth protocol, VPLS, their specific packet formatting, they have slight differences from Togazaki's description, but those -- the differences are very, very minor.

Ex. 2012, 90:25–91:6 (cited by Pet. Reply 32 n.116). Dr. Yang further testified:

> I can say you need to bring VPLS into Togazaki, and Togazaki already describes a lot of features that exist in the VPLS standard; although, even though Togazaki didn't explicitly refer it to the VPLS. And, so, and then also because Togazaki descriptions already have a lot of features that exist in VPLS. So bringing VPLS into Togazaki is a fairly easy task.

Id. at 103:11–18.

This cross-examination testimony by Dr. Yang, however, is conclusory and thus not persuasive. Dr. Yang does not identify the common features and similarities in the packet header formats between VPLS and

Togazaki, nor did she explain why, in light of those features and similarities in the packet headers, it would be easy to bring VPLS into Togazaki. Ex. 2012, 90:25–91.6, 103:11–18. She merely concluded that doing so would be easy. *Id.* Further, Dr. Yang has not identified the modifications that would be required to provision a VPLS on Togazaki or why an ordinarily skilled artisan would have found those modifications to be minor. *Id.* Admittedly, it can be difficult for an expert to support cross-examination testimony during cross-examination, but Petitioner had other means to support this testimony. Petitioner could have questioned Dr. Yang on redirect to support this testimony. Further, Petitioner could have submitted a reply declaration from Dr. Yang, particularly where Petitioner knew that it would be relying on this cross-examination testimony in its Reply. Moreover, Dr. Yang could have analyzed the issue of reasonable expectation of success in her original declaration and provided this testimony and its support there. But Petitioner and Dr. Yang did not support the cited cross examination testimony, and unsupported expert testimony is not persuasive.

In sum, we determine that Dr. Yang's declaration and cross-examination testimony do not support a finding of a reasonable expectation of success.

(b). Dr. Akl's Testimony

Both parties cite Dr. Akl's testimony to support their arguments regarding a reasonable expectation of success. PO Resp. 44–45 (citing Ex. 2011 ¶¶ 33, 54); Pet. Reply 32. We determine that Dr. Akl's testimony does not support a finding of a reasonable expectation of success.

As Patent Owner notes, Dr. Akl testified that a significant reconfiguration would be required to implement a VPLS in Togazaki:

> Moreover, to implement a VPLS into Togazaki, a reconfiguration of packet headers would be required to even be able to functionally send messages using Togazaki's network topology. Togazaki's junction nodes as presently configured cannot send VPLS messages as the junction nodes are not able to process VPLS formatted messages. Significant reconfiguration would be required to implement any VPLS into Togazaki.

Ex. 2011 ¶ 54 (cited by PO Resp. 44–45).

Further, Dr. Akl testified that using a virtual network, such as Voit's virtual MPLS system, in Togazaki would involve many challenges. Ex. 2011 ¶¶ 33(1)–36, 33(2)–34(2).[4] Dr. Akl testified that a new MPLS header would have to be added in front of the IP header because Togazaki's system is a layer 2 invention, whereas an MPLS network such as Voit requires layers other than layer 2. *Id.* ¶ 34(1). Further, Dr. Akl testified that the MPLS header operates on layer 3. *Id.* As a result, Dr. Akl testified that significant modifications and changes to Togazaki would be necessary. *Id.* ¶ 33(2).

We agree with Patent Owner that the above testimony by Dr. Akl raises specific issues regarding provisioning a VPLS on Togazaki. PO Resp. 44–45. Further, Dr. Akl's testimony regarding those issues seems

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[4] In Dr. Akl's declaration, paragraph numbers 33 and 34 each reference two different paragraphs. Ex. 2011, 18–19. We use the designations 33(1) and 34(1) to refer to the first set of paragraphs 33 and 34 in that declaration. In particular, paragraph 33(1) refers to the paragraph on page 18 of the declaration, and paragraph 34(1) refers to the paragraph spanning pages 18 and 19. We use the designations paragraphs 33(2) and 34(2) for the second set of paragraphs 33 and 34, which appear on page 19 of the declaration.

plausible. Dr. Yang's failure to address the issues raised by the above testimony by Dr. Akl, when Petitioner had the opportunity to have her do so, further weighs in favor of a finding that Petitioner has not demonstrated a reasonable expectation of success.

Petitioner, however, asserts that Dr. Akl's testimony weighs in favor of finding a reasonable expectation of success, arguing that Dr. Akl never disputed that bringing VPLS into Togazaki is a fairly easy task. Pet. Reply 32. We are not persuaded by that argument because Dr. Akl testified that using a virtual network, such as Voit's virtual MPLS system, in Togazaki would involve "many challenges" and require "[s]ignificant modifications and changes." Ex. 2011 ¶¶ 35, 33(2). Thus, we do not conclude that he tacitly agreed that provisioning a VPLS in Togazaki would have been a fairly easy task.

Petitioner contends that Dr. Akl testified that it was known to encapsulate layer-2 packets so each packet may traverse VPLS tunnels through public layer-3 networks. Pet. Reply 32 & n.117 (citing Ex. 1033, 94:1–95:14). We are not persuaded by this argument because the cited testimony by Dr. Akl did not address whether the prior art knew how to encapsulate layer-2 packets so each packet may traverse VPLS tunnels through public layer-3 networks. Instead, the cited testimony addressed the practice of the '150 patent claims as the questions eliciting the testimony at issue demonstrate. Ex. 1033, 93:11–95:14 ("Q. Would it be necessary for a packet header to include information relating to the VPLS instance *to practice the '150 claims*? . . . Q. Give me the context for 'yes.' . . . Q. In your answer you refer to encapsulating a layer 2 packet. Do you recall that? . . . Q. One example of encapsulating a layer 2 packet would be to include

additional header information, correct?") (emphasis added). Thus, in the cited testimony, Dr. Akl did not admit that it was known via the prior art to encapsulate layer-2 packets so each packet may traverse VPLS tunnels through public layer 3 networks. Instead, he was referring to the practice of the '150 patent claims.

Petitioner argues that Dr. Akl testified that prior art MPLS networks could provide labeled switched tunnels through layer-3 networks. Pet. Reply 32 & n.118 (citing Ex. 1033, 83:11–14). We disagree. The cited testimony addressed the preferred embodiments of the '150 patent, not the teachings of the prior art, as the questions eliciting the testimony at issue demonstrate. Ex. 1033, 82:15–83:14 ("Q. If you turn to Column 5, starting at line 16 of the *patent*. . . . Q. . . . . The *patent* refers to "a system of label-switched tunnels through an IP network. Q. . . . Is MPLS one of many examples providing label-switched tunnels through an IP network? . . . Q. . . . So would it allow for label -- would it allow providing label-switched tunnels through an IP network?" (emphasis added)). The cited disclosure beginning at line 16 of column 5 of the '150 patent is part of the patent's Description of the Preferred Embodiments, which is not part of the patent's description of the prior art. Ex. 1001, 5:1–36. Thus, the cited testimony did not admit that prior art MPLS networks could provide labeled switched tunnels through layer-3 networks. Ex. 1033, 83:11–14.

In sum, we find that Dr. Akl's testimony does not support a finding of a reasonable expectation of success.

ii. Parties' Arguments and Evidence Without Supporting Expert Testimony

Petitioner, in particular, made a number of arguments (in its Reply) regarding a reasonable expectation of success that lack supporting expert

testimony and thus were not addressed in Section II.C.3.b.i above. Pet. Reply 25–28. We address those arguments here, and as set forth below, we do not find these arguments persuasive.

In its Reply, Petitioner argues that Busi ’268 and Busi ’469 teach VPLS and ring headers are “conventionally added” to packets and that skilled artisans knew how to add ring headers before transmission and remove them upon receipt. Pet. Reply 32–33 & n.120 (citing Ex. 1011 ¶ 39, Ex. 1010 ¶¶ 38, 94–95, Fig. 4). Petitioner cites no expert testimony to support this argument. *Id.* Further, although cited paragraph 38 of Busi ’469 uses the term “conventionally added,” it does so in describing the process of its Figure 4, merely stating that in that process “a RPR Header is conventionally added.” Ex. 1010 ¶ 38. We do not read that description of the process of Figure 4 of Busi ’469 as a teaching that in general skilled artisans knew how to add VPLS and ring headers before transmission and remove them upon receipt to provision a VPLS or, more specifically, in Togazaki’s system.

Petitioner asserts that Patent Owner cannot argue a lack of reasonable expectation of success in modifying Togazaki to provision a VPLS in light of the representations that Patent Owner made in the ’150 patent and during prosecution. Pet. Reply 29–30. To support this assertion, Petitioner cites the description in the Background section of the ’150 patent that Busi ’469, Busi ’268, Kompella, and Lasserre describe provisioning a VPLS. *Id.* at 29–30 & n.108 (citing Ex. 1001, 2:5–34). This passage in the ’150 patent, however, does not address provisioning a VPLS in Togazaki, and Petitioner does not explain how that ’150 patent’s admissions regarding the provision of VPLSs in Busi ’469, Busi ’268, Kompella, and Lasserre implicates

provisioning a VPLS in Togazaki (and presents no expert testimony on that issue). *Id.* Further, Petitioner cites the statement that the applicants of the '150 patent made during prosecution that "[a]nother known failure mode involves failure of the bridge connecting the ring network and the Layer 2 network, which effectively separates the two networks from one another and disrupts the VPLS across them." Ex. 1002, 712 (cited by Pet. Reply 30 n.108). Petitioner, however, provides no analysis of the relevance of this statement to the proposed modification in Togazaki. Pet. Reply 30 & n.108.[5] Thus, we are not persuaded that the statements that were made in the '150 patent or during prosecution prevent Patent Owner from arguing that Petitioner has failed to demonstrate a reasonable expectation of success in modifying Togazaki to provision a VPLS.

Petitioner argues that Patent Owner has not presented any evidence that provisioning VPLS instances on Togazaki would have led to unexpected results or been beyond the skill level of an ordinarily skilled artisan. Pet. Reply 32. Although Patent Owner may not have shown that provisioning VPLS instances on Togazaki would have led to unexpected results or that an ordinarily skilled artisan would have been unable to provision a VPLS instance on Togazaki, Patent Owner does not have to prove unexpected results or prove that an ordinarily skilled artisan could not have modified

[5] We recognize that the statement refers to a known failure involving a Layer 2 network that disrupts VPLS, and Togazaki is a Layer 2 network. Ex. 2011 ¶ 34(1). Nevertheless, Petitioner has not explained how this statement constitutes an admission that an ordinarily skilled artisan would have a had a reasonable expectation of success in modifying Togazaki.

Togazaki. Nor does Patent Owner have to affirmatively prove a lack of reasonable expectation of success (and we do not find that Patent Owner in this proceeding has proven a lack of a reasonable expectation of success). The burden of proving a reasonable expectation of success is on Petitioner. *Eli Lilly & Co. v. Teva Pharms. Int'l GmbH*, 8 F.4th 1331, 1348–49 (Fed. Cir. 2021) ("it was, at all times, [petitioner's] burden to show that the claims would have been obvious, including that a skilled artisan would have had a reasonable expectation of success in achieving the claimed invention"). And Petitioner has not met that burden via the arguments and evidence it provided without supporting expert testimony (nor, as set forth in Section II.C.3.b.i, with the arguments and evidence that it provided with expert testimony).

Petitioner argues, that under *In re Inland Steel*, factfinders may reasonably conclude that the strength of the correlation between references gives rise to a reasonable expectation of success from combining them. Pet. Reply 31 n.112 (citing *In re Inland Steel*, 265 F.3d 1354, 1364 (Fed. Cir. 2001). We determine that this principle is not applicable here.

In *Inland Steel*, Inland argued that, when combining two particular prior art references, an ordinarily skilled artisan would not have reasonably expected that the combination would produce improved magnetic properties in electrical steel. 265 F.3d at 1362. In that case, "the prior art references identify a common problem (improving magnetic properties), and one of the references gives a specific example of a single critical parameter (the addition of antimony) and gives explicit guidance tying that parameter to the key parameter of another reference (steel prepared without hot-band annealing)." *Id.* at 1364. The Federal Circuit found: "[t]he Board

reasonably concluded that the strength of the correlation between the references gives rise to a reasonable expectation of success from combining them." *Id.* In this proceeding, Petitioner has not shown that Togazaki or Voit have a similar correlation giving rise to a reasonable expectation of success in modifying Togazaki. Petitioner does not identify a common problem, the disclosure of a single critical parameter, and the guidance of one reference tying that parameter to the key parameter of the other reference (or the equivalent) that would lead to a reasonable expectation of success in provisioning a VPLS on Togazaki. Pet. Reply 29–33. Further, Petitioner and Dr. Yang have not adequately explained the similarities between Togazaki and VPLS (as disclosed in Voit or otherwise) (*id.* at 31–32, Ex. 2012, 90:25–91:15, 103:17–18, 107:19–108:3), and we do not read *Inland Steel* as holding that the mere allegation of similarities in two references establishes a reasonable expectation of success in combining them.

Petitioner argues that modifying Togazaki to provision a VPLS does not involve combinations where one must try numerous possible choices to arrive at a successful result. Pet. Reply 31. Petitioner, however, cites no expert testimony to support its assertion that the choices for provisioning a VPLS are so limited, nor does Petitioner explain even via attorney argument why the choices are purportedly so limited. *Id.* Further, Petitioner cites no authority that holds that the mere existence of a limited number of choices establishes a reasonable expectation of success.

In sum, we do not find the above arguments and evidence that Petitioner provided without supporting expert testimony to be persuasive.

e. Summary

After reviewing the parties' arguments regarding a reasonable expectation of success, their cited expert testimony, and the other cited evidence, we determine that Petitioner has not proven a reasonable expectation of success in modifying Togazaki to provision a VPLS. Thus, we determine Petitioner has not proven that claims 1 and 11 would have been obvious over Togazaki and Voit.

4. Analysis of Dependent Claims 2–5, 8–10, 12–15, and 18–20

Petitioner's showing for dependent claims 2–5, 8–10, 12–15, and 18–20 does not remedy the deficiencies set forth in its showing for independent claims 1 and 11. Pet. 36–50. Thus, Petitioner has not proven that claims 2–5, 8–10, 12–15, and 18–20 would have been obvious over Togazaki and Voit.

D. Asserted Obviousness of Claims 1–5, 8–15, and 18–20 over Sultan and Togazaki

Petitioner contends that claims 1–5, 8–15, and 18–20 are rendered obvious by the combination of Sultan and Togazaki. Pet. 53–82. We determine that Petitioner has not proven that Sultan and Togazaki teach, suggest, or otherwise render obvious elements 1.5 and 11.5 of independent claims 1 and 15, respectively. Thus, we determine that Petitioner has not proven that claims 1–5, 8–15, and 18–20 would have been obvious over Sultan and Togazaki.

1. Sultan

Sultan relates to a "data communications network . . . that includes a ring with attached bridges that operate in a manner tending to preserve spatial reuse of the ring." Ex. 1007 ¶ 8. An example resilient packet network is shown in Figure 1 of Sultan, which includes RPR end stations 14

and bridges 16, with the end stations acting as the ultimate sources and destinations of RPR packets in the network. *Id.* ¶ 19. Figure 1 of Sultan is reproduced below:

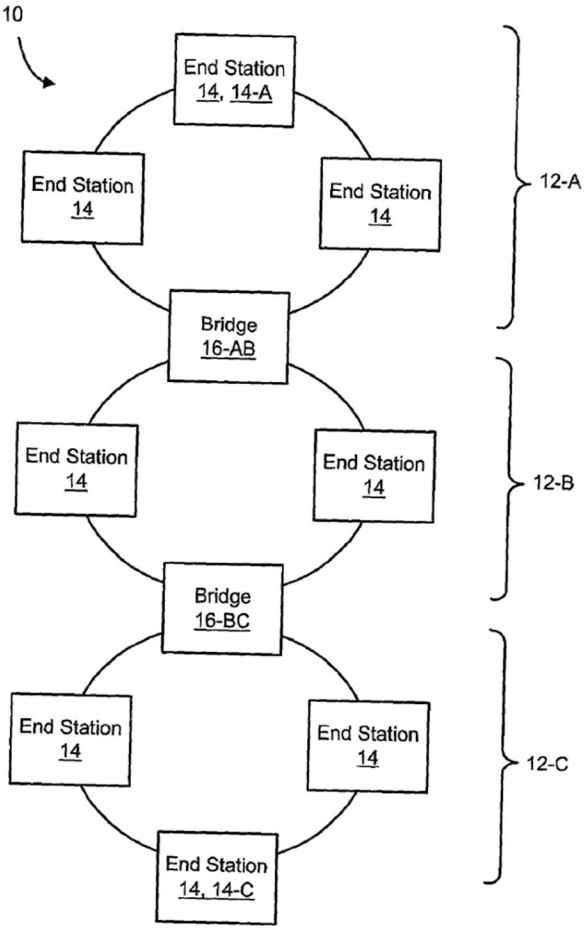

Fig. 1

Figure 1 is a block diagram of a multi-ring network.

In Figure 1 reproduced above, "[a]n RPR bridge 16 appears at each point of interconnection between two RPR rings 12, such as RPR bridges 16-AB and 16-BC as shown." Ex. 1007 ¶ 20. Each ring of Sultan "employs RPR packets to transport data among the RPR nodes." *Id.* ¶ 21. Each RPR ring 12 employs two transmission modes: broadcast mode and unicast

transmission mode. *Id.* Broadcast mode is a packet originated by a source RPR node and circulated to all the other nodes on the ring until the packet is "stripped" or removed from the ring. *Id.* Unicast transmission mode references where a pack is originated by a source RPR node and then is circulated only to a specific destination RPR node as identified by a value RPR packet header. *Id.* The result of unicast transmission results in "spatial reuse." *Id.*

2. Analysis of Independent Claims 1 and 11

For claims 1 and 11, we focus our analysis on elements 1.5 and 11.5. Element 1.5 recites "responsively to the messages, activating at least one of the deactivated connection termination points so as to overcome the segmentation and maintain connectivity of the first node with the at least one second node of the ring network, without creating a loop in the VPLS via the second network." Ex. 1001, 9:53–58. Element 11.5 recites: "responsively to the messages, to activate at least one of the deactivated connection termination points so as to overcome the segmentation and maintain connectivity of the first node with the at least one second node of the ring network, without creating a loop in the VPLS via the second network." *Id.* at 11:11–16.

a. Parties' Arguments

i. The Petition

In the Petition, Petitioner argues that both Sultan alone and in combination with Togazaki renders elements 1.5 and 11.5 obvious. Pet. 70 ("Sultan alone or in view of Togazaki renders obvious . . ."), 71 ("Alternatively, Sultan and Togazaki would render obvious this limitation.").

For its first theory—that Sultan alone renders obvious elements 1.5 and 11.5, Petitioner asserts that Sultan discloses "activating at least one of the deactivated connection termination points." Pet. 70. With respect to "overcoming segmentation and maintaining connectivity . . . without creating a loop in the VPLS via the second network," Petitioner argues that it was "generally known in the art to have ring networks include a deactivated CTP [connection termination point] that activates to maintain connectivity between the networks." *Id.* Petitioner asserts Lasserre teaches a network that activates a deactivated connection to maintain connectivity to another network in response to a message failure. *Id.* at 70–71. Further, Petitioner argues that Sultan activates a deactivated CTP in the event of failure and thus, based on what is generally known in the art illustrated by Lasserre, an ordinarily skilled artisan would have been motivated to have Sultan's system respond to a two span failure message by activating a deactivated CTP to overcome segmentation and maintain connectivity without creating a loop in the VPLS via the second network. *Id.* at 71.

For its second theory—that the combination of Sultan and Togazaki render obvious elements 1.5 and 11.5, Petitioner argues that Togazaki teaches a ring network with segmentation between first and second nodes for failure in two spans. Pet. 71–72. Petitioner asserts that, to overcome this segmentation, Togazaki activates a deactivated CTP without creating a loop in the network. *Id.* at 72. According to Petitioner, Togazaki's Figure 7 flowcharts show a process for activating a deactivated CTP to overcome segmentation. *Id.*

Petitioner asserts that, based on Togazaki's teachings, an ordinarily skilled artisan would have found it desirable to have Sultan's ring network

activate a deactivated CTP to overcome segmentation and maintain connectivity of the first and second nodes without creating a loop in the VPLS. Pet. 73. Petitioner further asserts that an ordinarily skilled artisan would have been motivated to do so because this allows Sultan's system to address failures in two spans without creating a loop. *Id.* According to Petitioner, this would further Sultan's goal of providing mechanisms for maintaining the connection between the ring network and a second network. *Id.*

ii. Patent Owner Response

In the Patent Owner Response, Patent Owner asserts that Petitioner relies on Lasserre to satisfy the "without creating a loop" limitations in elements 1.5 and 11.5, but provides no reason to combine Lasserre's teachings with Sultan. PO Resp. 61. Patent Owner also argues that Petitioner does not adequately explain how an ordinarily skilled artisan would have been combined and been motivated to combine Sultan's and Togazaki's teachings to activate a deactivated CTP without creating a loop. *Id.* at 63.

iii. Petitioner's Reply

In its Reply, Petitioner argues that '150 patent explains that looping arises when there are failures in two or more ring spans. Pet. Reply 24. Petitioner presents annotated figures showing the alleged looping created by failures in two or more ring spans, but does not provide any expert testimony addressing those annotated figures. *Id.* at 24–25. Petitioner further argues that Dr. Yang, in her declaration, opines that activating Sultan's deactivated CTP in response to segmentation prevents loops from forming in Sultan's networks. *Id.* at 26. Further, Petitioner argues that 802.17 complaint nodes,

like Sultan's, exchange RPR-topology messages to discover failures in two spans. *Id.* at 28. Petitioner asserts those teachings alone establish that an ordinarily skilled artisan would have known why and how to exchange messages indicating two span failures and activating Sultan's deactivated CTP to avoid creating loops. *Id.* Petitioner also argues that Patent Owner's infringement contentions show that systems like Sultan meet the "without creating a loop" limitations. *Id.* Further, Petitioner asserts that Patent Owner concedes Sultan discloses destination stripping when transmitting packets, which further demonstrates the Sultan-Togazaki combination renders obvious the "without creating a loop" limitations. *Id.* at 29.

iv. Patent Owner's Sur-reply

Patent Owner argues that the Institution Decision indicated that the Petition did not show how or why an ordinarily skilled artisan would have been motivated to combine Lasserre's teachings regarding preventing loops with Sultan's system. PO Sur-reply 21. Further, Patent Owner argues that the Institution Decision indicated that Petitioner failed to establish whether or how an SRP (based on Togazaki's teachings) would be incorporated into Sultan to present loops. *Id.* Patent Owner asserts that, instead of presenting a reason for incorporating teachings to prevent loops with Sultan, Petitioner merely argues that Sultan closely parallels Togazaki and that the '150 patent acknowledges that it was generally known for 802.17 compliant nodes to exchange RPR topology messages. *Id.* According to Patent Owner, Petitioner's newly annotated figures improperly present new theories regarding loops without supporting expert testimony. *Id.* at 21–23. Further, Patent Owner argues that Petitioner's reliance on Patent Owner's infringement contentions is untimely. *Id.* at 24.

b. Analysis

We determine that Petitioner has not proven, by a preponderance of the evidence, that Sultan alone or in combination with Togazaki teaches, suggests, or otherwise renders obvious the "without creating a loop" limitations in elements 1.5 and 11.5. As discussed above, Petitioner presents two alternative theories for the "without creating a loop" limitations in elements 1.5 and 11.5. Pet. 70–73. The first theory is that, based on what is generally known in the art as illustrated by Lasserre, the "without creating a loop" limitations (and the other limitations in elements 1.5 and 11.5) would have been obvious. The second theory is that Sultan in combination with Togazaki would have rendered the "without creating a loop" limitations (and the other limitations in elements 1.5 and 11.5) obvious. As discussed below, we are not persuaded by either theory.

i. Sultan with General Knowledge

We determine that Petitioner has not proven its first theory that, based on what is generally known in the art as illustrated by Lasserre, an ordinarily skilled artisan would have been motivated to have Sultan's system respond to a two span failure message by activating a deactivated CTP to overcome segmentation and maintain connectivity without creating a loop in the VPLS via the second network. Pet. 70–71. Below, first, we address the arguments and evidence Petitioner submitted to support this theory in the Petition. Then, we address the arguments and evidence in the Reply.

(a). Arguments and Evidence in the Petition

To support Petitioner's first theory, both Petitioner and Dr. Yang rely on a passage from Lasserre that describes pseudowires and discloses holding a secondary pseudowire in a standby state until a primary pseudowire fails.

Ex. 1013, 16[6] (cited by Pet. 70–71 and Ex. 1003 ¶ 230). In this passage, Lasserre teaches that, by keeping only one link active at a time, Lasserre avoids loops:

> An MTU-s device will setup two [PWE3-ETHERNET] pseudowires (one each to PE-rsl and PE-rs2) for each VPLS instance. One of the two pseudowires is designated as primary and is the one that is actively used under normal conditions, while the second pseudowire is designated as secondary and is held in a standby state. The MTU device negotiates the pseudowire labels for both the primary and secondary pseudowires, but does not use the secondary pseudowire unless the primary pseudowire fails. Since *only one link is active at a given time, a loop does not exist* and hence 802.10 spanning tree is not required.

Id. (emphasis added). Both Petitioner and Dr. Yang rely on the above passage from Lasserre to argue that an ordinarily skilled artisan would have modified Sultan based on an ordinarily skilled artisan's general knowledge. Pet. 71 (citing Ex. 1013, 17–18[7]); Ex. 1003 ¶ 230. Neither Petitioner nor Dr. Yang, however, explain how or why an ordinarily skilled artisan would have combined Lasserre's teaching regarding loops with Sultan. Pet. 71; Ex. 1003 ¶¶ 230–231. Petitioner merely notes that the '150 patent incorporates Lasserre by reference and concludes that:

> Thus, based on Sultan activating a deactivated CTP in the event of failure, in conjunction with what was generally known in the art illustrated by Lasserre, [an ordinarily skilled artisan] would have been motivated to have Sultan's system respond to a two

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[6] We cite to the original page numbers of Exhibit 1013.

[7] Petitioner's page citation for Lasserre appears slightly off. The quote Petitioner provides from Lasserre appears on page 16 of Ex. 1013, using the exhibit's original page numbering, and on pages 15–16, using the page numbers added by Petitioner.

> span failure message by activating a deactivated CTP to overcome the segmentation and maintain connectivity of first and second nodes without creating a loop in the VPLS via the second network.

Pet. 71. Dr. Yang provides the same observation and conclusion in her declaration. Ex. 1003 ¶¶ 230–231. Dr. Yang further testifies that this modification would further Sultan's goal of providing mechanisms for maintaining the connection between the ring network and a second network. *Id.* ¶ 231.

As mentioned, neither Petitioner nor Dr. Yang, however, explains how and why an ordinarily skilled artisan would have combined Lasserre's teaching regarding loops with Sultan to perform the activation recited in limitations 1.5 and 11.5 without creating a loop. Pet. 70–71; Ex. 1003 ¶¶ 230–231. In fact, Petitioner and Dr. Yang do not propose combining the teachings of Lasserre and Sultan. Pet. 70–71; Ex. 1003 ¶¶ 230–231. Instead, for both theories, Petitioner and Dr. Yang assert that Lasserre demonstrates general knowledge that an ordinarily skilled artisan would apply to Sultan. Pet. 70–71; Ex. 1003 ¶¶ 230–231. We, however, are not persuaded that an ordinarily skilled artisan would do that. Petitioner and Dr. Yang do not explain why Lasserre's teachings should be considered as evidence of such general knowledge, rather than simply the teaching of an individual prior art reference. Pet. 70–71; Ex. 1003 ¶¶ 230–231. Petitioner and Dr. Yang merely assert that Lasserre should be so considered, but conclusory expert testimony is not persuasive.

Further, nothing in the passage from Lasserre cited by Petitioner and Dr. Yang indicates that what Lasserre is describing is anything other than Lasserre's own teachings (e.g., the passage does not indicate that ordinarily

skilled artisans were already aware of this feature or would automatically think to apply it to all systems). Ex. 1013, 16. Further, the mere fact that Petitioner's proposed modification might further Sultan's goal of providing mechanisms for maintaining the connection between the ring network and a second network does not provide a motivation to use Lasserre's teachings to modify Sultan. That goal, as indicated by Dr. Yang, concerns maintaining connectivity, not avoiding looping. Ex. 1003 ¶ 231. Further, the passages in Sultan cited by Dr. Yang as setting forth that goal do not mention avoiding looping. Ex. 1006 ¶¶ 34–36, Fig. 4 (cited by Ex. 1003 ¶ 231 n.202).

In sum, we are not persuaded by the arguments and evidence that Petitioner presented with its Petition to support its theory that, based on the general knowledge of an ordinarily skilled artisan, Sultan alone teaches, suggests, or otherwise renders obvious the "without creating a loop" limitations in elements 1.5 and 11.5.

(b). Arguments and Evidence in the Reply

In its Reply, Petitioner does not further address Lasserre's teachings regarding avoiding loops, nor does Petitioner make any further arguments regarding the general knowledge of an ordinarily skilled artisan for limitations 1.5 and 11.5. Pet. Reply 24–29. Most of the discussion of limitations 1.5 and 11.5 for Ground 2 in Petitioner's Reply concerns the second alternative theory addressed below. Petitioner, however, makes a few arguments that are arguably applicable to both theories, which we address here.

Petitioner argues that Dr. Yang opines that activating Sultan's deactivated CTP in response to segmentation prevents loops from forming in Sultan's networks. Pet. Reply 26 & n.98 (citing Ex. 1003 ¶¶ 193, 230–234).

Petitioner asserts that neither Patent Owner nor Dr. Yang contest this opinion. *Id.* We disagree. Although the Patent Owner Response may not have expressly addressed Dr. Yang's testimony, it contested the arguments in the Petition that express the same opinions that Dr. Yang expressed for limitations 1.5 and 11.5. PO Resp. 59–63.

Petitioner argues that Patent Owner's infringement contentions assert that systems meet the "without creating a loop" limitations when unblocking of ring protection links enabling the interconnected rings network to overcome segmentation and maintain connectivity. Pet. Reply 28 & n.102 (citing Ex. 1015, 32). Petitioner argues that thus these infringement contentions support a finding that Sultan meets the "without creating a loop" limitations because "Sultan unblocks connections by activating the CTP of deactivated node 16–S to maintain connectivity between nodes across two rings." *Id.* We are not persuaded by this argument. The cited page of Patent Owner's infringement contentions does not on its face indicate that all systems that unblock ring protection links and enable the interconnected rings network to overcome segmentation and maintain connectivity satisfy the "without creating a loop" limitations. Ex. 1015, 32. The cited page addresses an allegedly infringing product and some of the technology that product purportedly uses. *Id.* Petitioner does not explain even via attorney argument how that description relates to Sultan's disclosure, let alone provide expert testimony or other evidence on the issue. Pet. Reply 28.

Petitioner also argues that two passages in columns 5 and 6 of the '150 patent teach that looping arises when there are failures in two or more rings and that this teaching supports Petitioner's showing for the limitation of "without creating a loop." Pet. Reply 24 & n.92 (citing Ex. 1001, 5:19–

22, 6:44–45, Ex. 1002, 712). We are not persuaded by this argument. First, Petitioner presents this argument without any supporting expert testimony (*id.*), and mere attorney argument is not evidence. *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 23(Fed. Cir. 2012) ("arguments of counsel cannot take the place of evidence lacking in the record"); *Estee Lauder Inc. v. L'Oreal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997). Second, we do not interpret the cited passages in the '150 patent as teaching that looping arises whenever there are failures in two or more rings. Ex. 1001, 5:19–22, 6:44–45. The first cited passage reads:

> Under normal operating conditions, however, *no more than one of these connections* (for example, connection 34) *is active in each VPLS*, in order *to avoid creation of loops* in the VPLS.

Id. at 5:19–22 (emphasis added). This passage teaches that, by keeping no more than one particular type of connection active in each VPLS, the '150 patent avoids the creation of loops. *Id.* It does not teach that looping arises whenever there are failures in two or more rings. *Id.*

The second cited passage reads:

> During normal operation, as long as ring network 22 is not segmented, the CTP-Ps are set to the "down" state, at an initial CTP-P setting step 62. In this state, the CTP-P is blocked, so that no packets are forwarded through it. *If the CTP-Ps were not blocked in this manner, a looped path could be formed in the VPLS via network 30.* Although the Spanning Tree Protocol (STP) could be used to prevent this sort of loop, STP is not well accepted in wide area networks, and its use in the context of VPLS is not standardized. The present method provides rapid protection against network segmentation without requiring that an additional loop-prevention protocol, such as STP, be carried out.

Ex. 1001, 6:44–55 (emphasis added). This passage teaches that blocking CTP-Ps prevent looping. *Id.* It does not teach that looping arises whenever there are failures in two or more rings. *Id.*

With its Reply, Petitioner provides annotated figures from 802.17, Togazaki, and Sultan that show via annotations how, based on Petitioner's interpretation of the above passages from columns 5 and 6 of the '150 patent, Petitioner contends that loops in each of those figures are created by failures in two or more rings. Pet. Reply 24–25. As discussed above, we do not agree with Petitioner's interpretation of those passages from the '150 patent. Further, the contentions set forth via the annotations in these figures lack supporting expert testimony, and mere attorney argument is not evidence. *Id.*

In sum, we are not persuaded by the arguments and evidence that Petitioner presented with its Reply to support its theory that, based on the general knowledge of an ordinarily skilled artisan, Sultan alone teaches, suggests, or otherwise renders obvious the "without creating a loop" limitations in elements 1.5 and 11.5. Further, considering all of the arguments and evidence presented in this proceeding regarding Petitioner's first theory, we are not persuaded that Petitioner has proven that, based on the general knowledge of an ordinarily skilled artisan, Sultan alone teaches, suggests, or otherwise renders obvious the "without creating a loop" limitations in elements 1.5 and 11.5.

ii. Sultan and Togazaki

We determine that Petitioner has not proven that the combination of Sultan and Togazaki teach, suggest, or otherwise render obvious the "without creating a loop" limitations in elements 1.5 and 11.5.

In the Petition, Petitioner argues that Togazaki's Figure 7 illustrates that Togazaki shows a process for activating a deactivated CTP to overcome segmentation (Pet. 72), but, in the Petition, Petitioner does not explain how Togazaki's teachings of that activation would be incorporated into the Sultan's system *without creating a loop*. *Id.* Dr. Yang similarly does not explain how Togazaki's teachings of the activation in Figure 7 would be incorporated into the Sultan's system *without creating a loop*. Ex. 1003 ¶¶ 232–234.

In its Reply, Petitioner argues that the '150 patent explains that looping occurs when there are failures in two or more ring spans. Pet. Reply 24. As set forth in Section II.D.2.b.i.(b), we are not persuaded by this argument. As discussed in II.D.2.b.i.(b), Petitioner provides annotated versions of Togazaki Figure 6 and Sultan Figure 1 that it contends demonstrate that two span failures would create the recited looping if not for standby CTPs based on its interpretation of columns 5 and 6 of the '150 patent. Pet. Reply 24–25. As set forth in Section II.D.2.b.i.(b), we are not persuaded by these contentions, which Petitioner presents without any supporting expert testimony.

In its Reply, Petitioner further argues that activating Sultan's deactivated CTP would prevent looping by avoiding segmentation. Pet. Reply 26. This argument is premised on Petitioner's interpretation of the '150 patent that mere segmentation creates the recited looping. *Id.* at 24–26. As set forth in Section II.D.2.b.i.(b), we disagree with that interpretation. *Id.* at 25–26. Petitioner also relies on Dr. Yang's opinion that looping would not form when combining Sultan and Togazaki. *Id.* (citing Ex. 1003 ¶¶ 193, 230–234). That opinion, however, is conclusory as Dr. Yang did not

analyze why combining Sultan and Togazaki would avoid looping. Ex. 1003 ¶¶ 193, 230–234. Thus, we do not credit that opinion.

Petitioner further argues that it would have been routine for an ordinarily skilled artisan to use Togazaki's survival messages in Sultan. Pet. Reply 26. Even if we were to accept that argument, however, Petitioner has not persuaded us that the exchange of Togazaki's survival messages would avoid the recited looping.

Petitioner further argues it was known for 802.17 compliant nodes like Sultans to exchange RPR topology messages to discover failures in two spans. Pet. Reply 28. Even if we were to accept that argument, however, Petitioner has not shown that discovering those two failures and activating a CTP in response to that discovery would avoid the recited looping.

Petitioner also relies on Patent Owner's infringement contentions to support Petitioner's second theory for the "without creating a loop" limitations. Pet. Reply 28. As set forth in Section II.D.2.b.i.(b), we are not persuaded by Petitioner's arguments regarding those contentions.

Petitioner further argues that Sultan discloses destination stripping, which demonstrates that Sultan and Togazaki render obvious the "without creating a loop" limitations in elements 1.5 and 11.5. Pet. Reply 29. Petitioner asserts that both Sultan and Togazaki use the Spatial Reuse Protocol (SRP) to efficiently transmit packets around rings. *Id.* Petitioner claims that the use of SRP by Sultan and Togazaki shows why an ordinarily skilled artisan would have looked to Togazaki's messaging when designing loop prevention techniques in Sultan. *Id.* These arguments by Petitioner are unpersuasive for several reasons. First, the passages in Sultan that Petitioner cites as disclosing Sultan's use of SRP do not state that Sultan uses SRP.

Ex. 1007 ¶¶ 8–9, 12, 21–22, 27. Petitioner merely asserts via attorney argument that those passages teach that Sultan uses SRP, but mere attorney argument is not evidence. Pet. Reply 29. Second, even if an ordinarily skilled artisan would have looked to Togazaki's messaging when combining Sultan and Togazaki, Petitioner has not demonstrated that the mere incorporation of Togazaki's messaging in Sultan's system would prevent the recited looping. *Id.*

The Institution Decision suggested that paragraph 77 of Dr. Yang's testimony indicated the Sultan uses the Spatial Reuse Protocol and the use of that protocol prevents looping. Inst. Dec. 33. Upon further reflection, we do not interpret that testimony as setting forth such a proposition. In the cited paragraph, Dr. Yang quoted two paragraphs from Togazaki (paragraphs 10 and 11) that describe broadcast storms and loops, and the Spatial Reuse Protocol. Ex. 1003 ¶ 77. Dr. Yang quoted those paragraphs to support the thesis that Togazaki describes provisioning a local area network using the Spatial Resuse Protocol. *Id.* Dr. Yang further testified that SRP is a protocol that uses addressing suitable for VPLS instances. *Id.* ¶ 78. In neither paragraph, did Dr. Yang testify that SRP avoids loops, and neither paragraph was part of the section of her declaration addressing elements 1.5 or 11.5. *Id.* ¶¶ 77–78. Further, Petitioner did not argue in the Petition or in its Reply that Dr. Yang testified that the Spatial Reuse Protocol in Togazaki avoids looping. Pet. 33–35, 70–73; Pet. Reply 21–29. In any event, as noted in the Institution Decision, Petitioner sets forth no reason why an ordinarily skilled artisan would have incorporated the Spatial Reuse Protocol, described in Togazaki, in Sultan's system. Pet. 33–35, 70–73; Pet. Reply 21–29; Inst. Dec. 33.

As mentioned, Petitioner argues that Sultan uses the Spatial Resuse System, but as discussed above, the passages that Petitioner cite to support this proposition make no mention of the use of that protocol. Pet. Reply 29; Ex. 1007 ¶¶ 8–9, 12, 21–22, 27. Further, Togazaki identifies the Spatial Reuse Protocol as a Cisco protocol. Ex. 1006 ¶ 11. The passages cited by Petitioner from Sultan do not mention the use of a Cisco protocol. Ex. 1007 ¶¶ 8–9, 12, 21–22, 27. And Petitioner provides no expert testimony supporting its assertion that Sultan uses the Spatial Reuse Protocol. Pet. Reply 29. Although Sultan uses the term "spatial reuse" (*see, e.g.*, Ex. 1007, code (57)), Petitioner nowhere cites where Sultan refers to the Spatial Reuse Protocol (SRP). Pet. Reply 29. Further, Petitioner merely argues that Sultan's alleged use of the SRP provides a reason why an ordinarily skilled artisan would combine Togazaki's messaging with Sultan, but as discussed above, Petitioner has not shown that combining Togazaki's messaging with Sultan would avoid the recited looping. *Id.*

In sum, Petitioner has not proven that the combination of Togazaki and Sultan teaches, suggests, or otherwise renders obvious limitations 1.5 and 11.5.

iii. Summary

In conclusion, we determine that Petitioner has not proven either of its two theories as to how Togazaki and Sultan teach, suggest, or otherwise render obvious limitations 1.5 and 11.5. Accordingly, Petitioner has not proven that Sultan and Togazaki would have rendered claims 1 and 11 obvious.

3. Analysis of Dependent Claims 2–5, 8–10, 12–15, and 18–20

Petitioner's showing for dependent claims 2–5, 8–10, 12–15, and 18–20 does not remedy the deficiencies for its showing for elements 1.5 and 11.5. Pet. 73–82. Thus, Petitioner has not proven that claims 2–5, 8–10, 12–15, and 18–20 would have been obvious over Sultan and Togazaki.

E. Petitioner's Motion to Exclude

Petitioner moves to exclude the following cross examination testimony from the deposition transcript (Ex. 2012) of its expert, Dr. Yang: 70:11–71:18, 77:16–78:9, and 80:13–82:5. Mot. Excl. 1–5. We dismiss this motion as moot because, in this Decision, we do not rely upon any of the cross examination testimony that Petitioner seeks to exclude.

III. CONCLUSION

As set forth in the following table, Petitioner has not proven, by a preponderance of the evidence, that any of the challenged claims are unpatentable:

Claims	**35 U.S.C. §**	**References**	**Claims Shown Unpatentable**	**Claims Not Shown Unpatentable**
1–5, 8–15, 18–20	103(a)	Togazaki, Voit		1–5, 8–15, 18–20
1–5, 8–15, 18–20	103(a)	Sultan, Togazaki		1–5, 8–15, 18–20
Overall Outcome				1–5, 8–15, 18–20

IV. ORDER

It is:

ORDERED that claims 1–5, 8–15, and 18–20 of the '150 patent have not been shown, by a preponderance of the evidence, to be unpatentable;

ORDERED that Petitioner's Motion to Exclude is dismissed as moot; and

FURTHER ORDERED that because this is a Final Written Decision, the 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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