

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JUNIPER NETWORKS, INC.,
Petitioner,

v.

MONARCH NETWORKING SOLUTIONS LLC,
Patent Owner.

IPR2024-00561
Patent 8,130,775 B2

Before THU A. DANG, BRIAN J. McNAMARA, and
ROBERT J. WEINSCHENK, *Administrative Patent Judges*.

DANG, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background*

Juniper Networks, Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1 and 6 (the “challenged claims”) of U.S. Patent No. 8,130,775 B2 (Ex. 1001, “the ’775 patent”). Paper 3 (“Pet.”). Monarch Networking Solutions LLC (“Patent Owner”) filed a Preliminary Response. Paper 9 (“Prelim. Resp.”).

Under 37 C.F.R. § 42.4(a), the Board has authority to determine whether to institute an *inter partes* review. Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we grant Petitioner’s request and institute an *inter partes* review of all challenged claims.

B. *Related Proceedings*

Petitioner identifies the ’775 patent as the subject of *Monarch Networking Solutions LLC v. Cisco Systems, Inc. and Charter Communications, Inc.*, No. 2:20-cv-00015 (E.D. Tex.); and *Monarch Networking Solutions LLC v. Juniper Networks, Inc.*, No. 1:23-cv-00670 (E.D. Va.), transferred to *Monarch Networking Solutions LLC v. Juniper Networks, Inc.*, No. 3:23-cv-05076 (N.D. Cal.). Pet. 4–5.

Petitioner also identifies the ’775 patent as being involved in *Cisco Systems, Inc. v. Monarch Networking Solutions LLC*, IPR2020-01226 (PTAB); and *Ex Parte* Reexamination No. 90/014,701. Pet. 5.

C. The '775 Patent

The '775 patent, titled “Mechanism for Protecting a Pseudo-wire,” issued on March 6, 2012, from Application No. 12/528,083, filed on February 26, 2008. Ex. 1001, codes (54), (45), (22).

The '775 patent is directed to routing data packets in packet-switched networks, wherein labels are added to data packet headers with information that enables network routers to determine the next hop for a packet to reach its destination. *See* Ex. 1001, 1:30–39. The '775 patent recognizes that pseudo-wires have been used to emulate a point-to-point link between two devices of a packet-switched network. *Id.* at 1:45–49. The prior art packet-switched network is depicted in Figure 2, reproduced below:

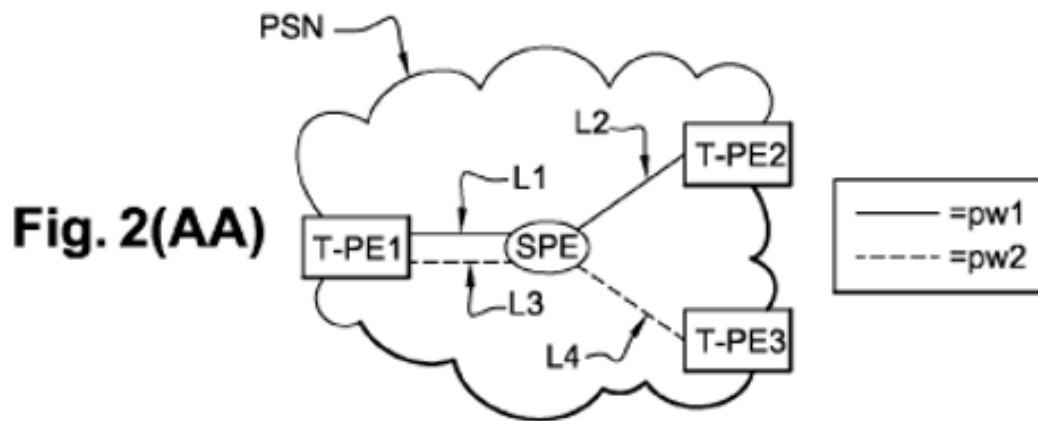


Figure 2 shows prior-art packet-switched network (PSN), in which first pseudo-wire pw1 is set up between input router T-PE1 at one edge of network PSN and output router T-PE2 at another edge of network PSN. *Id.* at 2:12–17. First link L1 that is part of pseudo-wire pw1 is set up between input router T-PE1 and intermediate router SPE of network PSN, while second link L2 that is also part of pseudo-wire pw1 is set up between intermediate router SPE and output router T-PE2. *Id.* at 2:15–20. Second pseudo-wire pw2 is then set up between input router T-PE1 constituting a

first end of pseudo-wire pw2 and second output router T-PE3 constituting a second end of pseudo-wire pw2. *Id.* at 2:20–23. First link L3 that is part of second pseudo-wire pw2 is set up between input router T-PE1 and intermediate router SPE, while second link L4 that is also part of second pseudo-wire pw2 is set up between intermediate router SPE and output router T-PE3. *Id.* at 2:23–27. According to the '775 patent, the prior-art PSN network shown in Figure 2 has the drawback of consuming network resources that increases the restore time in the event of a fault affecting an output router, with a negative impact on quality of service. *Id.* at 2:40–47. Accordingly, the '775 patent proposes setting up two pseudo-wires to broadcast a data stream (*id.* at 2:54–60), wherein, to optimize the use of network resources, for example bandwidth, a single link common to the two pseudo-wires is set up between the input router and the intermediate router. *Id.* at 3:1–5.

Figure 3 is reproduced below:

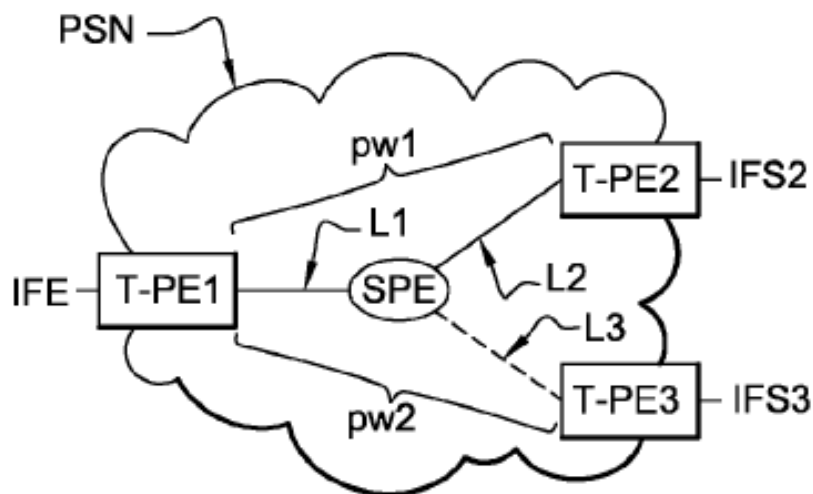


Fig. 3

Figure 3 represents a connection set up between input router T-PE1 and intermediate routers T-PE2 and T-PE3, each of these three routers being at an edge of network PSN. *Id.* at 6:25–28. As shown in Figure 3, first link L1 is set up between input router T-PE1 and intermediate router SPE, and second link L2 is set up between intermediate router SPE and first output router T-PE2, wherein first and second links L1, L2 constitute first pseudo-wire pw1 setting up a connection between input router T-PE1 and first output router T-PE2. *Id.* at 6:29–38. Second pseudo-wire pw2 is set up between input router T-PE1 and second output router T-PE3, wherein second pseudo-wire pw2 consists of first link L1 and second link L3 set up between intermediate router SPE and second output router T-PE3. *Id.* at 6:39–43. Accordingly, first link L1 is shared by pseudo-wires pw1 and pw2. *Id.* at 6:44–45.

D. The Challenged Claims

Both of the challenged claims 1 and 6 are independent claims. Claim 1 is illustrative, and is reproduced below:

1. A method of setting up at least two pseudo-wires able to broadcast a data stream, comprising:

setting up a first pseudo-wire comprising a first link set up between an input router of a packet-switched network and an intermediate router of the packet-switched network and a second link set up between said intermediate router and a first output router of the packet-switched network; and

setting up a second pseudo-wire between said input router and a second output router of the packet-switched network, wherein the second pseudo-wire comprises said first link and a third link set up between said intermediate router and said second output

router, said first link being shared by the first and second pseudo-wires.

Ex. 1001, 12:14–27.

E. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1 and 6 of the '775 patent on the following grounds (Pet. 7):

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1, 6	103(a)	Wainner, ² Bocci, ³
1, 6	103(a)	Kamite, ⁴ Bocci

Petitioner relies on the Declaration of Samrat Bhattacharjee, Ph.D. (Ex. 1003) in support of its unpatentability contentions.

II. ANALYSIS

A. Discretion Under 35 U.S.C. § 325(d)

Institution of an *inter partes* review is discretionary. In determining whether to institute an *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the '775 patent issued was filed before this date, the pre-AIA version of § 103 applies.

² U.S. Patent Publication No. US 2007/0239891 A1, published October 11, 2007, filed April 6, 2006 (Ex. 1030, “Wainner”).

³ Bocci, M., “An Architecture for Multi-Segment Pseudo Wire Emulation Edge-to-Edge,” IETF, printed January 11, 2006 (Ex. 1031, “Bocci”).

⁴ Japanese Patent No. 2006-129359, published May 18, 2006, filed November 1, 2004 (Ex. 1041, “Kamite”; Ex. 1036, Kamite Translation).

substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). The Director has delegated that discretion to the Board. 37 C.F.R. § 42.4(a).

In evaluating the exercise of discretion to deny institution under Section 325(d), the Board uses the following two-part framework: (1) determining whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, determining whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”). The art presented in the Petition is not “substantially the same” as the art previously presented to the Office when there is a material difference between them. *Wolfspeed, Inc. v. Trs. of Purdue Univ.*, IPR2022-00761, Paper 13 at 7–8 (Vidal Mar. 30, 2023).

Patent Owner contends that all art and arguments were previously considered. Prelim. Resp. 38–44. In particular, Patent Owner contends that: (1) Wainner “was expressly considered on the record during prosecution and the prior examination” (*id.* at 38); (2) Bocci “is substantially addressed in the specification of the ’775 Patent itself” (*id.* at 41 (emphasis omitted)); and (3) “Kamite is a translation of a foreign reference that Petitioner has included as a transparent attempt to try to avoid this Petition being rejected under § 325(d), given . . . that Wainner and Bocci . . . have repeatedly been presented to—and considered by—the USPTO” (*id.* at 43). Although Patent Owner acknowledges that “Kamite was not identified by name during prior

prosecution,” according to Patent Owner, Petitioner here “relies on Kamite in substantially the same manner that the examiner relied on U.S. Patent No. 7,602,702 to Aggarwal” in the prior reexamination. *Id.* at 43–44.

Petitioner points out that Kamite “was not considered or cited during original prosecution of the ’775 patent, either by the Examiner, in an [information disclosure statement (‘IDS’),] or on the face of the ’775 patent.” Pet. 83. Petitioner further contends that “Kamite is also materially different than the references considered and cited during original prosecution” because “it discloses sharing a first link between a first and second pseudo-wire, which was purportedly not found in the prior art at issue in original prosecution.” *Id.*

We are not persuaded that we should exercise our discretion to deny institution under the facts presented here. As an initial matter, it is undisputed that Kamite was not submitted to the Office during prosecution of the ’775 patent or during reexamination (*see* Prelim. Resp. 43–44; Pet. 83, 85), so it could not have been considered by the Office.

Further, we are not persuaded that Kamite is substantially the same as Aggarwal or that Petitioner’s arguments regarding Kamite are substantially the same as those presented in the prior *ex parte* reexamination. *See* Prelim. Resp. 43–44. In particular, in this proceeding, Petitioner relies on Kamite for disclosing “the entirety of claims 1 and 6—in particular, setting up two pseudo-wires that share a first link.”⁵ Pet. 57 (citing Ex. 1040 ¶ 108).

⁵ Petitioner relies on Bocci as “supplement[ing] Kamite’s disclosures and further [teaching] combining consecutive segments into a multi-segment pseudo-wire.” Pet. 58.

On the other hand, in the reexamination proceeding, the Examiner initially stated that “Aggarwal is generally directed to routing traffic ‘associated with a point to multipoint (PM2P) tunnel,’” wherein “extensions” may be used to set up point-to-point (P2P) label-switched paths (LSPs) between source and receiver provider edge routers. Ex. 1008, 113. The Examiner also initially stated that it would have been obvious “to apply Hussain’s⁶ known technique of implementing LSPs as pseudo-wires to Aggarwal’s similar LSPs within [a multi-protocol label switching] network.” *Id.* at 116. But the Examiner ultimately concluded that the “combination of Aggarwal and Hussain fails to disclose . . . setting up a first pseudo-wire comprising a first link [and] setting up a second pseudo-wire, wherein the second pseudo-wire comprises said first link and a third link . . . , said first link being shared by the first and second pseudo-wires.” *Id.* at 9.

Here, Petitioner relies on Kamite for disclosing first and second pseudo-wires that share a first link. *See* Pet. 68–71, 74–78. And, as discussed in more detail below, on this record, we agree that Kamite teaches first and second pseudo-wires that share a first link. *See* Sections II.D2.2.ii, II.D2.2.iii. In other words, Petitioner shows sufficiently for institution that Kamite teaches the specific features that the Examiner found were missing from the combination of Aggarwal and Hussain. Thus, the evidence of record indicates that there are differences between Kamite and Aggarwal that were material to the Office’s prior consideration of the art.

Therefore, we are unpersuaded by Patent Owner’s contention that the same or substantially the same art previously was presented to the Office or

⁶ Hussain, Iftekhar, “Fault-Tolerant IP and MPLS Networks,” Cisco Press, 2004 (“Hussain”).

the same or substantially the same arguments previously were presented to the Office. Prelim. Resp. 43. Since the first part of the *Advanced Bionics* framework is not satisfied, we need not determine whether Petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims. *See Advanced Bionics*, Paper 6 at 8.

Nonetheless, even if the first part of the *Advanced Bionics* framework were satisfied, Petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims. As discussed above, the Examiner allowed the challenged claims during reexamination because the “combination of Aggarwal and Hussain fails to disclose . . . setting up a first pseudo-wire comprising a first link [and] setting up a second pseudo-wire, wherein the second pseudo-wire comprises said first link and a third link . . . , said first link being shared by the first and second pseudo-wires.” Ex. 1008, 9. Here, on this record, we agree with Petitioner that Kamite teaches those features of the challenged claims. *See* Sections II.D2.2.ii, II.D2.2.iii; *Advanced Bionics*, Paper 6 at 8 n.9 (“An example of a material error may include . . . overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims.”). Thus, even if Patent Owner were correct that Kamite is substantially the same as Aggarwal, then Petitioner demonstrates that the Examiner overlooked specific teachings of Kamite and Aggarwal that impact the patentability of the challenged claims.

Accordingly, we decline to exercise our discretion to deny institution under 35 U.S.C. § 325(d).

B. Claim Construction

Petitioner contends that the term “link” was construed by the Eastern District of Texas court as “connection between an interface of a first router

and an interface of a second router.” Pet. 19. Petitioner contends it applies the district court’s construction for purposes of this Petition. *Id.* at 20.

Patent Owner responds that it “accepts Petitioner’s proposed construction of link and does not propose any additional construction” for purposes of the Preliminary Response. Prelim. Resp. 18.

Only terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). At this time, we determine that it is unnecessary to construe any claim term expressly to resolve the disputed issues before us.

C. Principles of Law

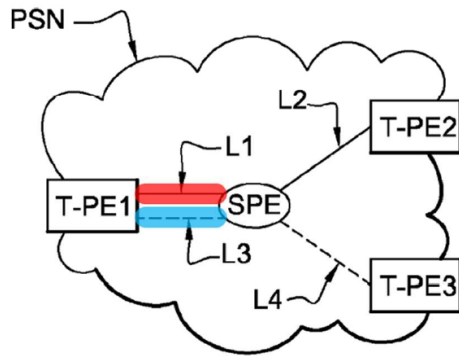
A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject 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 non-obviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

D. Claims 1 and 6 as Obvious Under 35 U.S.C. § 103(a)

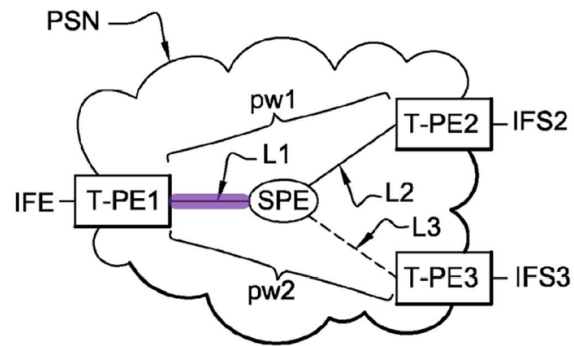
Petitioner contends that “[t]he majority of the technology claimed by the ’775 patent is applicant admitted prior art (‘AAPA’).” Pet. 14. In particular, Petitioner contends Figure 2(AA) of the ’775 patent depicts “a pseudo-wire configuration that the patent admits was known in the prior

art.” *Id.* at 11 (citing Ex. 1001, 3:43–44, Fig. 2). Petitioner then provides a side-by-side comparison of annotated “Admitted Prior Art” Figure 2(AA) with annotated “Invention” Figure 3. *Id.* at 16.⁷

Admitted Prior Art (Fig. 2(AA))



'775 “Invention” (Fig. 3)



The above annotated Figure 2(AA) of the '775 patent shows “Prior Art” packet-switched network PSN comprising input router T-PE1, output routers T-PE1–T-PE3 and intermediate router SPE, wherein links L1 (red) and L3 (blue) are set up between T-PE1 and SPE. Pet. 16 (citing Ex. 1001, Fig. 2(AA)). The above annotated Figure 3 of the '775 patent shows “Invention” packet-switched network PSN, wherein link L1 (purple) is set up between T-PE1 and SPE. *Id.* (citing Ex. 1001, Fig. 3)

Petitioner contends that “the only ‘advance’ in the '775 [patent] claims—which . . . was already known in the prior art—was sharing a first link between the two pseudo-wires.” Pet. 16 (citing Ex. 1001, 12:14–27, Figs. 2(AA), 3; Ex. 1040 ¶ 47).

⁷ Here, Petitioner discusses AAPA in its overview of the '775 patent. However, Petitioner does not rely on AAPA in the asserted grounds, and we do not rely on AAPA in our analysis of the asserted grounds.

*D1. Claims 1 and 6 as Obvious Over Wainner and Bocci
(Ground 1)*

With respect to Ground 1, Petitioner contends that claims 1 and 6 of the '775 patent would have been obvious over Wainner and Bocci. Pet. 20–55. In response, Patent Owner contends that the Petition fails to present a reasonable likelihood of prevailing with respect to Ground 1. Prelim. Resp. 20–28.

We summarize the asserted art to Wainner and Bocci below.

1. Wainner

Wainner discloses “providing point-to-multipoint multihop distribution using Pseudo[-]wires (PWs).” Ex. 1030, code (57). In particular, Wainner recognizes that a PW may be used as a means of transporting multicast data, wherein an architecture that uses multi-hop/multi-point PWs may be utilized. *Id.* ¶ 20. This model statically binds an upstream PW to one or more downstream PWs. *Id.*

In an embodiment, Wainner’s method includes receiving data at a switching provider edge (S-PE) router from an upstream originating provider edge (O-PE) router by way of a first PW, wherein the first PW has a head end coupled to the O-PE and a tail end coupled to the S-PE. *Id.* ¶ 6. The method also includes replicating the data received by the S-PE to at least one receiver provider edge (R-PE) router by way of a respective PW for each of the at least one R-PE, wherein each of the respective PW between the S-PE and the R-PE has a head end coupled to the S-PE and a tail end coupled to the R-PE. *Id.* An illustration of Wainner’s environment for performing point-to-multipoint multihop distribution using PWs is depicted in Figure 2, reproduced below.

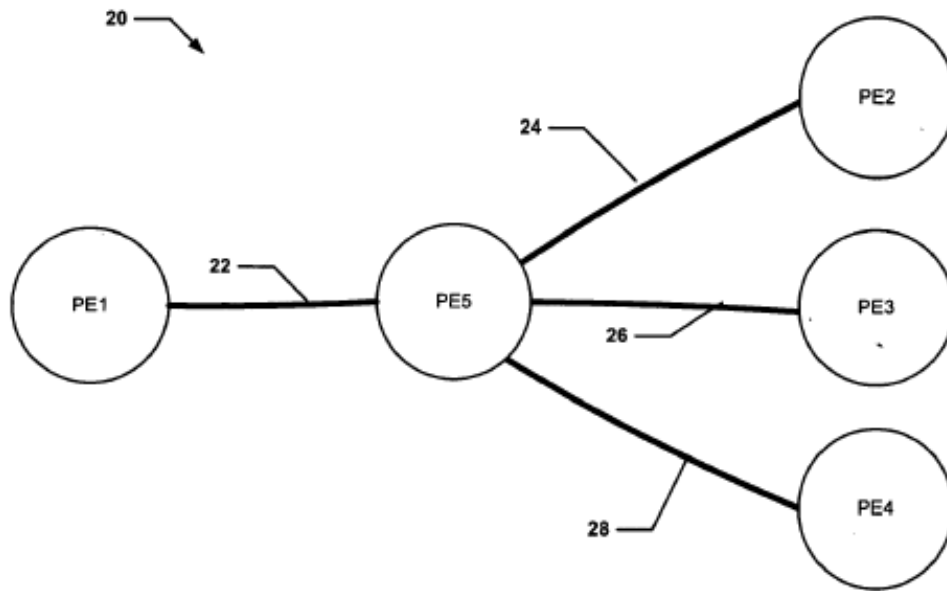


FIGURE 2

Figure 2 shows environment 20, which includes: originating (first) provider edge PE1; switching provider edge PE5; and downstream receiving provider edges PE2–PE4. *Id.* ¶ 23. As shown in Figure 2, PW 22 is signaled between the O-PE (PE1) and the S-PE (PE5) where the content is sourced at the O-PE. *Id.* Subsequently, the S-PE signals the establishment of PWs to one or more downstream R-PEs (PE2–PE4). *Id.* As shown in Figure 2, PW 24 is established between the S-PE (PE5) and PE2, PW 26 is established between the S-PE and PE3, and PW 28 is established between the S-PE and PE4. *Id.*

A flow chart of Wainner’s method for performing point-to-multipoint multihop distribution using PWs is depicted in Figures 6A–6B, reproduced below.

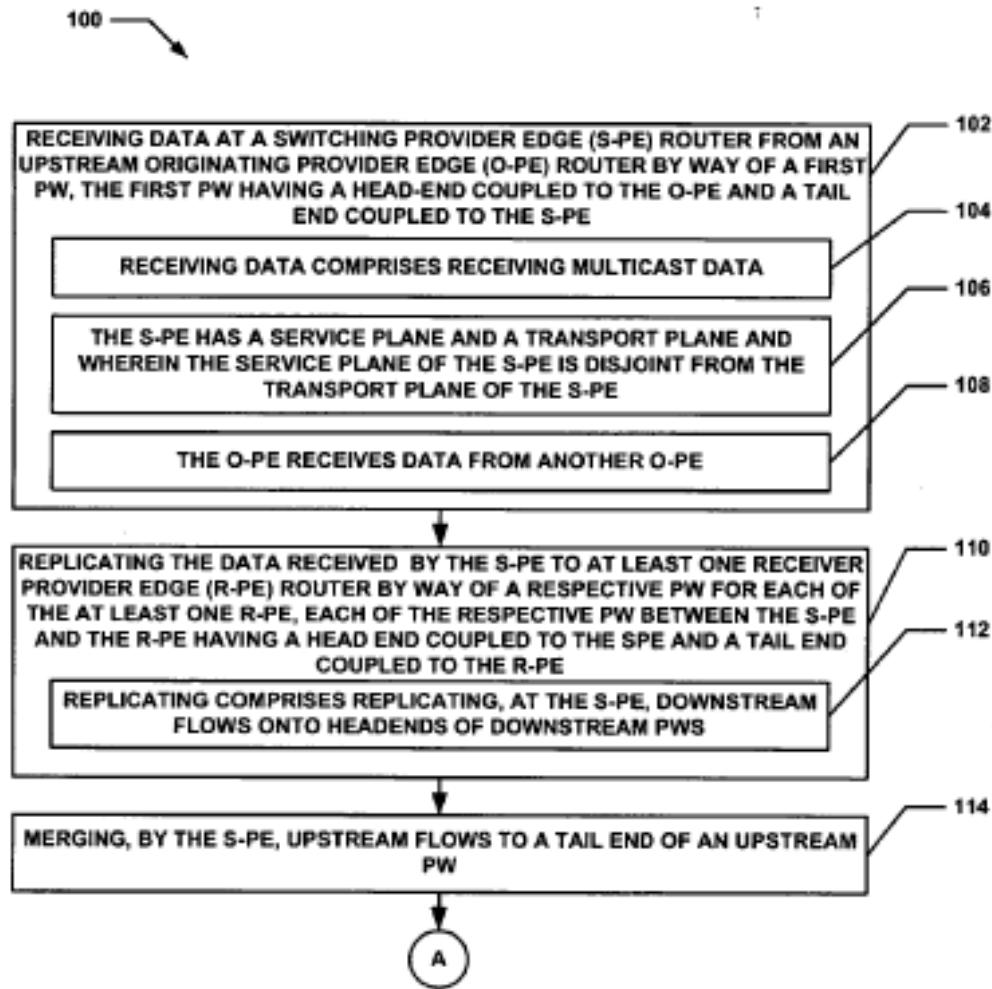


FIGURE 6A

Figure 6A depicts a flow chart of method 100 for point-to-multipoint distribution using PWs. *Id.* ¶ 28. As shown in Figure 6A, method 100 begins with step 102 of receiving data at an S-PE router from an upstream O-PE router by way of a first PW, wherein receiving data comprises receiving multicast data. *Id.* ¶ 29. Method 100 then proceeds to step 110 of replicating the data received by the S-PE to at least one R-PE router by way of a respective PW for each R-PE, wherein replicating comprises replicating, at the S-PE, downstream flows onto head ends of downstream PWs. *Id.*

¶ 30. Method 100 then continues to step 114 of merging, by the S-PE, upstream flows to a tail end of an upstream PW. *Id.* ¶ 31.

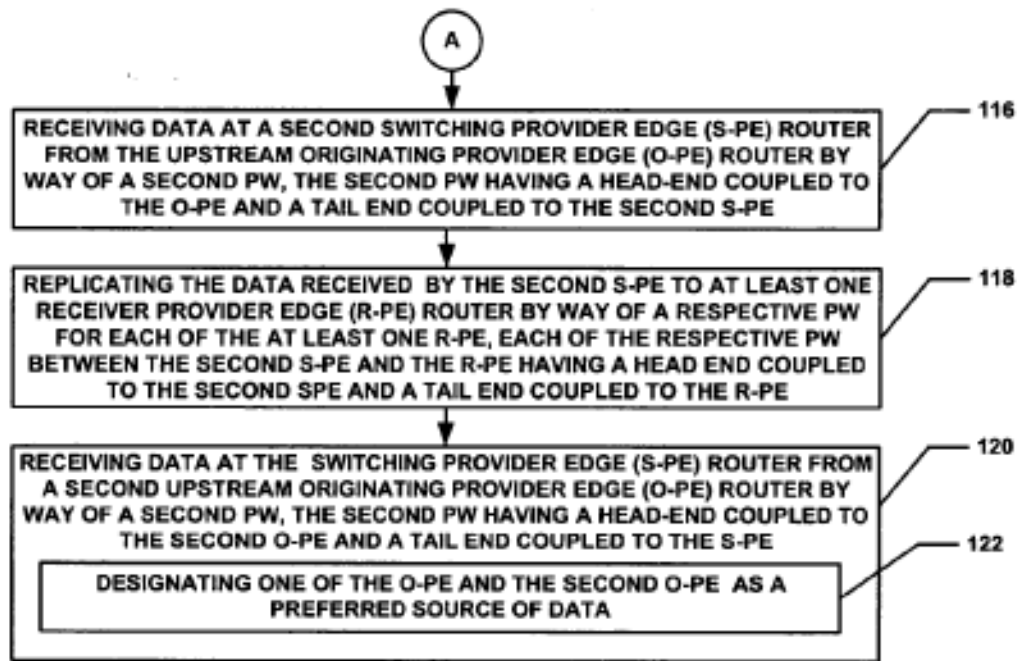


FIGURE 6B

FIGURE 6B depicts the continuation of the flow chart of method 100 shown in FIGURE 6A. *Id.* ¶ 28. As shown in FIGURE 6B, method 100 continues with step 116 of receiving data at a second S-PE router from the upstream O-PE router by way of a second PW. *Id.* ¶ 31. Method 100 then proceeds to step 118 of replicating the data received by the second S-PE to at least one R-PE router by way of a respective PW for each R-PE. *Id.* ¶ 32. Method 100 then ends with step 120 for receiving data at the S-PE router from a second upstream O-PE router by way of a second PW, wherein one of the O-PEs can be designated as a preferred source of data. *Id.* ¶ 33.

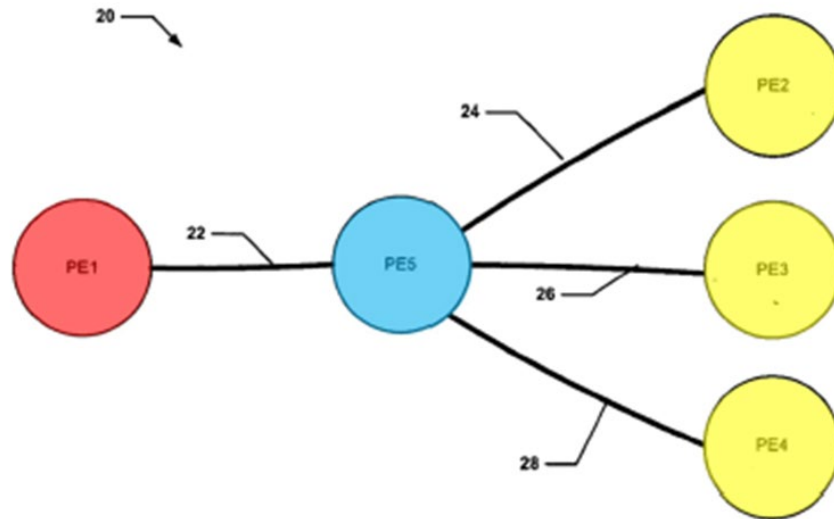
2. Bocci

Bocci is directed to an architecture for multi-segment (MS) pseudo-wire emulation edge-to-edge (PWE3). Ex. 1031, 1 (title). In particular, Bocci is directed to an architecture for extending pseudo-wire emulation across multiple PSN segments. *Id.* at 2 (“Abstract”).

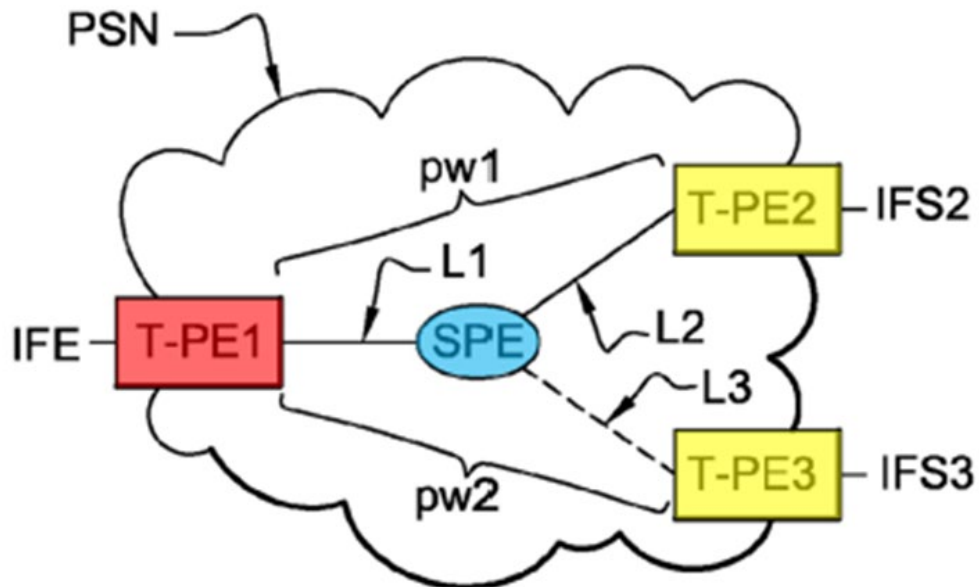
3. Analysis of Claims 1 and 6 over Wainner and Bocci

Petitioner contends that, in Wainner, “[s]equential pseudo-wire segments . . . combine to form ‘multi-hop/multi-point pseudo[-]wires.’” Pet. 22 (citing Ex. 1030 ¶ 20). According to Petitioner, Wainner’s network configuration “therefore share a link,” i.e., a “pseudo-wire [] between the origination provider edge [] and a switching provider edge.” *Id.* (citing Ex. 1040 ¶ 52). To support its contention, Petitioner refers to Wainner’s Figure 2. *Id.* at 28–29. Petitioner contends that Wainner discloses setting up a first pseudo-wire comprising links 22 and 24, and a second pseudo-wire comprising links 22 and 28 to route data across a network. *Id.* (citing Ex. 1030 ¶ 20, Fig. 2; Ex. 1040 ¶ 69).

According to Petitioner, “Wainner’s network configuration is nearly identical to the configuration described in the ’775 patent.” Pet. 29. Petitioner provides an annotated Figure 2 of Wainner and an annotated Figure 1 of the ’775 patent to illustrate its contentions.



Pet. 29. The above annotated Figure 2 of Wainner in the Petition, according to Petitioner, depicts “a first router (red) that routes a data packet over a shared link 22 to an intermediate router (blue), which then routes the data packet over separate links 24, 26, and 28 to each output router (yellow).” *Id.* (citing Ex. 1030, Fig. 2; Ex. 1040 ¶¶ 23, 24, 28–33).



Pet. 30. The above annotated Figure 1 of the '775 patent in the Petition, according to Petitioner, depicts “a first router (red) that routes a data packet over a shared link L1 to an intermediate router (blue), which then routes the data packet over separate links L2 and L3 to each output router (yellow).” *Id.* (citing Ex. 1001, 6:25–48, Fig. 3; Ex. 1040 ¶ 71).

We address in detail Petitioner’s contentions and Patent Owner’s arguments with respect to the limitations of representative claim 1 in subsections *i–iv* below, and with respect to the limitations of claim 6 in subsection *v*.

- i. Preamble, a “method of setting up at least two pseudo-wires able to broadcast a data stream”*

Petitioner contends that, “[t]o the extent [that] the preamble is limiting, Wainner and Bocci would have rendered obvious [the preamble].” Pet. 28 (citing Ex. 1040 ¶¶ 67–76). In particular, according to Petitioner, “Wainner explains that it uses at least two pseudo-wires to broadcast a data stream,” wherein “[t]he data in Wainner corresponds to the '775 patent’s data stream.” *Id.* (citing Ex. 1030 ¶ 6; Ex. 1040 ¶ 68).

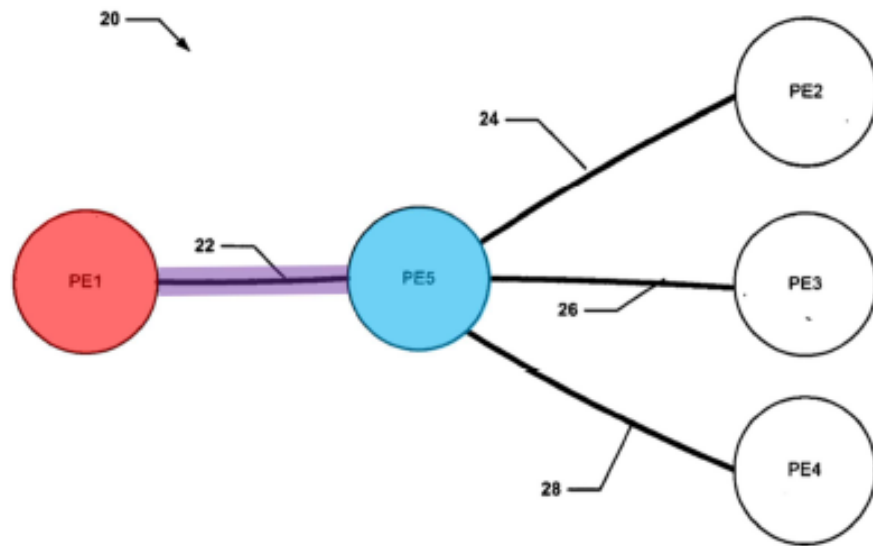
At this stage of the proceeding, Patent Owner does not present arguments in the Preliminary Response addressing the specific merits of Petitioner’s contentions with respect to the preamble. *See generally* Prelim. Resp. 20–28. However, Patent Owner acknowledges that Wainner teaches the use of multiple PWs. *Id.* at 20.

Having reviewed all of Petitioner’s assertions regarding this claim language, as well as the supporting evidence, we determine on this record that Petitioner has established a reasonable likelihood of establishing that the

combination of Wainner and Bocci teaches a “method of setting up at least two pseudo-wires able to broadcast a data stream.”⁸

- ii. “setting up a first pseudo-wire comprising a first link set up between an input router [] and an intermediate router [] and a second link set up between said intermediate router and a first output router”

Petitioner contends that “[t]he network in Wainner corresponds to the ’775 patent’s packet-switched network.” Pet. 36–37. Petitioner provides an annotated Figure 2 of Wainner, shown below, to illustrate its contentions.

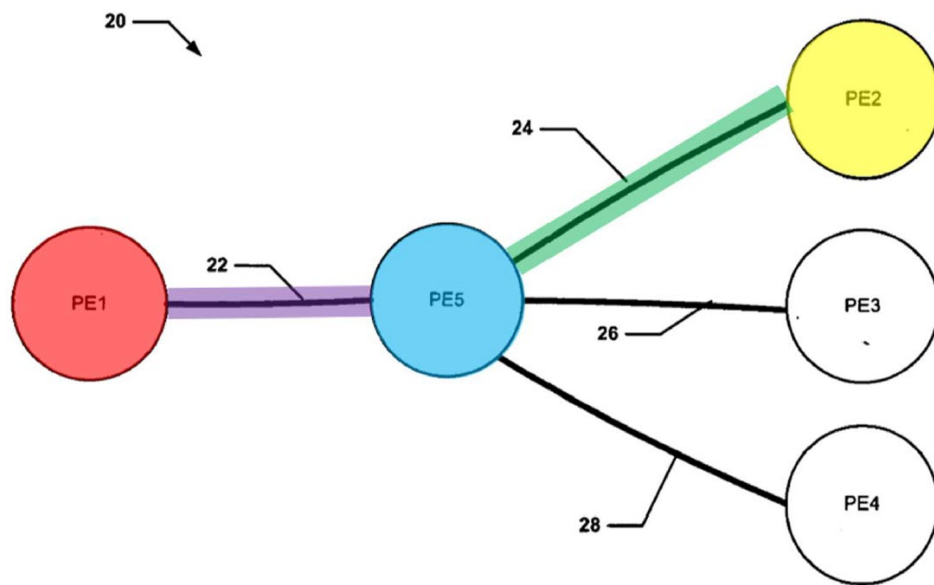


Pet. 38. The above annotated Figure 2 of Wainner in the Petition, according to Petitioner, illustrates “PW 22 [(purple) that] is signaled between an origination PE [] (PE1) [(red)] and an S-PE (PE5) [(blue)].” *Id.* Petitioner

⁸ Because there is no dispute that the combination of Wainner and Bocci teaches the method recited in the preamble, for purposes of institution, we need not decide whether the preamble is limiting. *See Nidec*, 868 F.3d at 1017 (noting that “we need only construe terms ‘that are in controversy’” (quoting *Vivid*, 200 F.3d at 803))

contends that “Wainner’s pseudo-wire 22 (purple) corresponds to the ’775 patent’s ‘first link’ L1 [] that is set up between the input router and intermediate router.” *Id.* at 36–37 (citing Ex. 1001, Fig. 3; Ex. 1030, Fig. 2; Ex. 1040 ¶¶ 79–81).

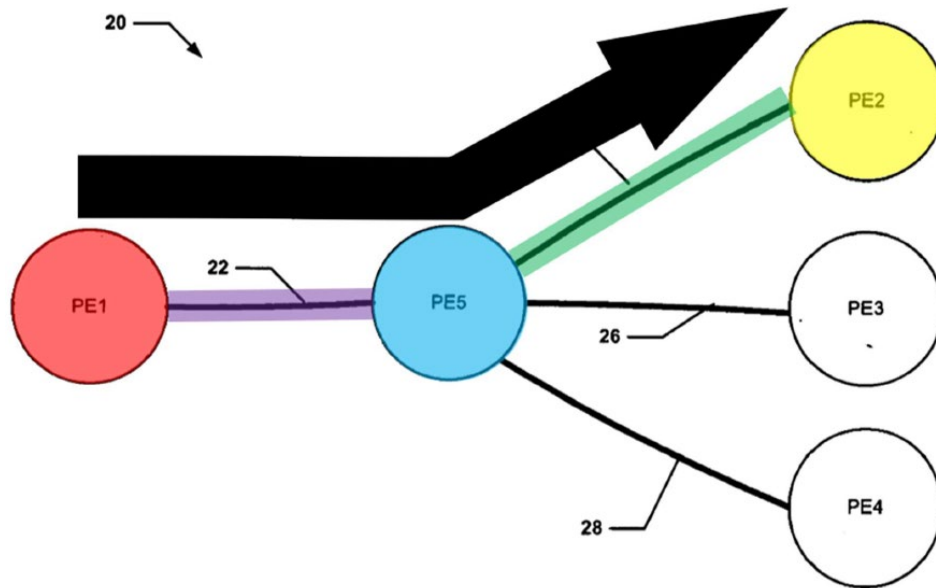
Petitioner further contends “Wainner’s receiving provider edge router (e.g., PE2) corresponds to the ’775 patent’s output router,” and “Wainner’s pseudo-wire segment (e.g., pseudo-wire 24) corresponds to a link.” Pet. 40 (citing Ex. 1001, Fig. 3; Ex. 1030, Fig. 2; Ex. 1040 ¶ 85). Petitioner provides an annotated Figure 2 of Wainner, shown below, to illustrate its contentions.



Pet. 40. The above annotated Figure 2 of Wainner in the Petition, according to Petitioner, illustrates pseudo-wire 24 (green) that corresponds to a link between S-PE (PE5) (blue) and provider edge router PE2 (yellow). *Id.*

According to Petitioner, “Wainner explains that pseudo-wires 22 and 24 are combined to form a ‘multi-hop/multi-point pseudowire[],’” and thus, “[t]ogether, [pseudo-wires 22, 24] comprise the ‘first pseudo-wire.’” Pet. 41

(citing Ex. 1040 ¶ 85). Petitioner provides an annotated Figure 2 of Wainner, shown below, to illustrate its contentions.



Pet. 42. The above annotated Figure 2 of Wainner in the Petition, according to Petitioner, illustrates “first pseudo-wire” between PE1 and PE2 via PE5, depicted with a large arrow. *Id.* at 41–42 (citing Ex. 1030, Fig. 3; Ex. 1040 ¶ 85).

Petitioner then contends that “the ’775 patent itself admits that multi-segment pseudo-wires were known in the art,” wherein a person of ordinary skill in the art (POSITA) “would have known that a ‘multi-hop’ pseudo-wire is equivalent to a ‘multi-segment’ pseudo-wire.” Pet. 43 (citing Ex. 1001, 1:53–2:2, 5:40–42; Ex. 1040 ¶ 87). Further, according to Petitioner, “Wainner explains that binding pseudo-wire segments results in ‘a layer 2 connection’ between the input and output router,” wherein a POSITA “would have known that a pseudo-wire is a layer 2 connection.” *Id.* at 43–44 (citing Ex. 1030 ¶ 24; Ex. 1040 ¶ 87).

Additionally, Petitioner contends that “Bocci explains that ‘[an] MS-PW is a single PW that for technical or administrative reasons is segmented

into a number of concatenated hops.” Pet. 43 (citing Ex. 1031, 7 (emphasis omitted)). Thus, Petitioner contends that “Wainner in combination with Bocci would have taught this limitation as well.” *Id.* at 44 (citing Ex. 1040 ¶ 88). According to Petitioner, a POSITA would have found it obvious to combine Wainner and Bocci “such that Wainner would operate in its disclosed manner and further implement Bocci’s teaching of combining consecutive pseudo-wires to form a multi-segment pseudo-wire.” *Id.* Petitioner contends that “[t]he resulting multi-segment pseudo-wire, Bocci explains, ‘is a single PW’ that ‘is indistinguishable from a SS-PW,’ i.e., a single-segment pseudo-wire.” *Id.* at 45 (citing Ex. 1031, 7).

Patent Owner argues that “[a] ‘link’ is different from a ‘pseudowire’ or a ‘segment of a pseudo-wire.’” Prelim. Resp. 7. According to Patent Owner, “[e]ach connection between routers in Wainner consists of at most one pseudo-wire.” *Id.* at 10.

Based on the current record, we find Patent Owner’s arguments unavailing. In particular, Patent Owner accepts Petitioner’s proposed construction of “link” as a “connection between an interface of a first router and an interface of a second router.” *See* Pet. 19; Prelim. Resp. 18. Patent Owner acknowledges that Wainner’s PW 22 is signaled between an origination PE, PE1, and an S-PE, PE5. Prelim. Resp. 21 (citing Ex. 1030 ¶ 23, Fig. 2). Thus, we find availing Petitioner’s reliance on Wainner’s PW 22 for teaching a link, i.e., a connection between an interface of an input PE, PE1, and an interface of an intermediate PE, PE5. *See* Ex. 1030 ¶ 23, Fig. 2.

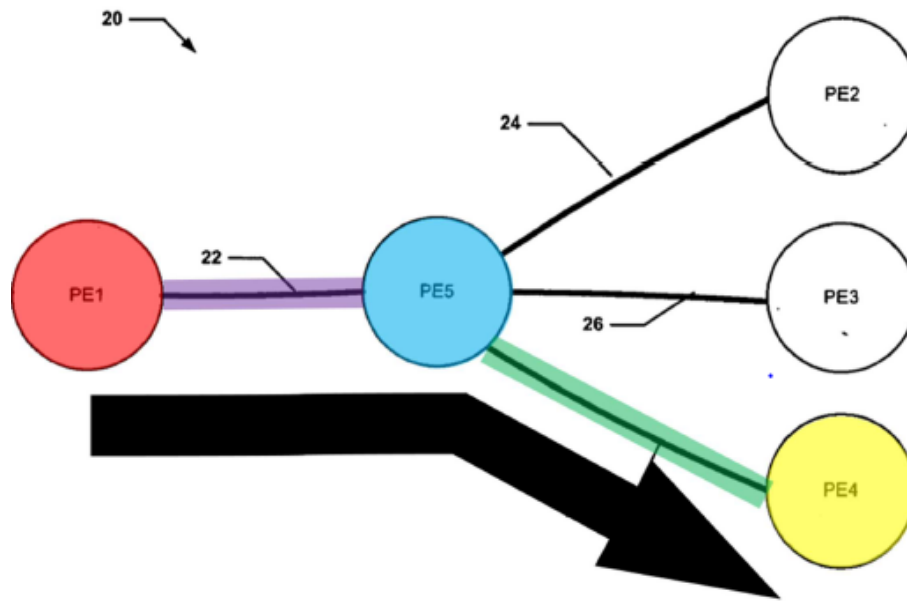
Based on the current record, we also find availing Petitioner’s reliance on Wainner’s PW 24 as a link/connection between PE5 and an output PE, PE2. Pet. 40. Further, we find availing Petitioner’s reliance on Wainner’s

PW 22 and PW 24 as two pseudo-wire segments of one multi-segment pseudo-wire, i.e., a “first pseudo-wire.” *Id.* at 43–44. As Petitioner points out, Bocci explains that a multi-segment pseudo-wire is “a single PW that for technical or administrative reasons is segmented ***into a number of concatenated hops.***” *Id.* at 43; *see also* Ex. 1031, 7.

On this preliminary record, we are persuaded that Petitioner has made a sufficient showing that the combination of Wainner in view of Bocci teaches “setting up a first pseudo-wire comprising a first link set up between an input router [] and an intermediate router [] and a second link set up between said intermediate router and a first output router,” as recited in claim 1.

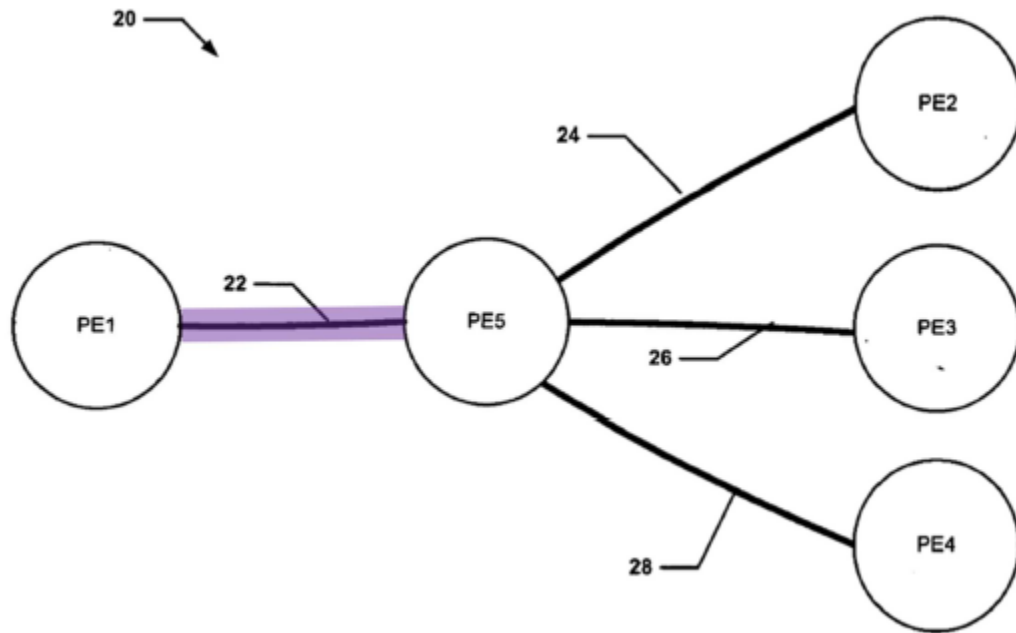
- iii. *“setting up a second pseudo-wire between said input router and a second output router [], wherein the second pseudo-wire comprises said first link and a third link set up between said intermediate router and said second output router,” “said first link being shared by the first and second pseudo-wires”*

Petitioner contends that “Wainner discloses setting up a second pseudo-wire between the input router and a second input router.” Pet. 47 (citing Ex. 1040 ¶ 93). Petitioner provides an annotated Figure 2 of Wainner, shown below, to illustrate its contentions.



Pet. 48. The above annotated Figure 2 of Wainner in the Petition illustrates a “second pseudo-wire” depicted with a large arrow between origination provider edge router PE1 (red) and provider edge router PE4 (yellow) via switching provider edge router PE5 (blue). *Id.* at 47–48 (citing Ex. 1030, Fig. 2). According to Petitioner, “Wainner explains that pseudo-wires 22 (purple) and 28 (green) combine to form a ‘multi-hop/multi-point pseudowire[]’ that corresponds to the ’775 patent’s second pseudo-wire.” *Id.* at 48 (citing Ex.1030 ¶ 20; Ex. 1040 ¶ 93). In particular, Petitioner contends that “Wainner’s second pseudo-wire comprises the first link 22 (purple) and a third link 28 (green) that is set up between the intermediate router PE5 (blue) and the second output router PE4 (yellow).” *Id.* at 49 (citing Ex. 1030, Fig. 2; Ex. 1040 ¶ 94). That is, Petitioner contends that “pseudo-wires 22 and 28 are ‘links’” (*id.*), wherein Wainner in combination with Bocci teach “combining Wainner’s pseudo-wires 22 and 28 into a multi-segment pseudo-wire that spans from the input router PE1 to the output router PE4.” *Id.* at 50.

Petitioner then contends that Wainner’s “first link (e.g., **pseudo-wire 22**) is shared by the first and second pseudo-wires.” Pet. 50 (citing Ex. 1040 ¶ 95). Petitioner provides an annotated Figure 2 of Wainner, shown below, to illustrate its contentions.



Pet. 50. The above annotated Figure 2 of Wainner in the Petition, according to Petitioner, illustrates the “link (purple) [] shared among the pseudo-wires.” *Id.*

Petitioner contends that “Wainner explains that its ‘model statically binds an upstream PW’—for example, the shared pseudo-wire 22—to ‘**one or more** downstream PW’—for example pseudo-wires 24 and 28.” Pet. 50–51 (Ex. 1030 ¶ 20). That is, “single upstream pseudo-wire 22 is bound to (i.e., shared between) **both** downstream pseudo-wires 24 and 28.” *Id.* at 51 (citing Ex. 1040 ¶ 95) (emphasis omitted). According to Petitioner, in Wainner, “the originating provider edge sends data to the switching provider edge only once,” and “the switching provider edge then replicates the received data so that it can send multiple copies of that data to different

receiver provider edges.” *Id.* at 52 (citing Ex. 1030 ¶¶ 29–32; Ex. 1040 ¶ 95). Petitioner surmises that, “[i]f the link were not shared, then [] both the first and second pseudo-wires would have to send multiple copies of the data from the originating provider edge to the switching provider edge,” wherein “the switching provider edge would not need to replicate the received data.” *Id.*

Patent Owner argues that “Wainner’s alleged first link only has *one* pseudo[-]wire (22) traversing it,” wherein “[t]he link is not shared by ‘*first and second*’ pseudo[-]wires’ as required by the claims.” Prelim. Resp. 20 (emphasis omitted). Patent Owner refers to the annotated Figure 2 of Wainner in the Petition in contending “purple element 22 shown above is not a link shared by two PWs as the Challenged Claims recite,” but rather “it is a single PW (which Petitioner even concedes is ‘pseudo-wire 22.’)” *Id.* at 21 (citing Pet. 50) (emphasis omitted). According to Patent Owner, “elements 22, 24, 26, and 28 are all separate PWs.” *Id.*

Based on the current record, we find Patent Owner’s arguments unavailing. As discussed above, we find availing Petitioner’s reliance on Wainner’s PW 22 for teaching a link between an interface of PE1 and an interface of PE5, Wainner’s PW 24 for teaching a link between PE5 and PE2, and Wainner’s PW 22 and PW 24 for teaching two pseudo-wire segments of one multi-segment pseudo-wire. Pet. 40, 43–44; *see also* Ex. 1030 ¶ 23, Fig. 2. Similarly, we find availing Petitioner’s reliance on Wainner’s PW 28 for teaching a link between an intermediate PE, PE5, and output PE, PE4, and Petitioner’s reliance on Wainner’s PW 22 and PW 28 for teaching two pseudo-wire segments of one multi-segment pseudo-wire that “corresponds to the ’775 patent’s second pseudo-wire.” Pet. 48 (citing Ex. 1030 ¶ 20; Ex. 1040 ¶ 93). Accordingly, we find availing Petitioner’s

contention that Wainner’s “first link (*e.g.*, **pseudo-wire 22**) is shared by the first and second pseudo-wires.” *Id.* at 50 (citing Ex. 1040 ¶ 95). That is, we find availing Petitioner’s contention that a first multi-segment pseudo-wire comprising pseudo-wire segments PW 22, PW 24 shares a “first link,” *i.e.*, PW 22, with a second multi-segment pseudo-wire comprising pseudo-wire segments PW 22, PW 28. *Id.*

Based on the current record, we are not persuaded by Patent Owner’s contention that Wainner’s PW 22 is not a “link . . . shared by ‘*first and second* pseudo[-]wires.’” Prelim. Resp. 20. As Patent Owner acknowledges, Wainner’s PW 22, highlighted as “purple element 22” in annotated Figure 2 of Wainner in the Petition, is shown as a “link.” *Id.* at 22. Although Patent Owner contends that the link is not “shared by two PWs as the Challenged Claims recite” (*id.*), we find availing Petitioner’s reliance on Wainner’s PW 22 and PW 24 as two pseudo-wire segments of a first multi-segment pseudo-wire, and Petitioner’s reliance on Wainner’s PW 22 and PW 28 as two pseudo-wire segments of a second multi-segment pseudo-wire, wherein the two multi-segment pseudo-wires share pseudo-wire segment PW 22. Pet. 40, 43–44; *see also* Ex. 1030 ¶ 23, Fig. 2. We are persuaded by Petitioner’s contention, supported by Bocci’s explanation, that a multi-segment pseudo-wire is “a single PW that for technical or administrative reasons is segmented *into a number of concatenated hops.*” Pet. 43; *see also* Ex. 1031, 7.

Furthermore, on the current record, we are also unpersuaded by Patent Owner’s contention that Petitioner’s reasons for combining Wainner and Bocci are “purely hindsight based.” Prelim. Resp. 27–28. In particular, we are unpersuaded by Patent Owner’s contention that “[n]one of the purported motivations to combine Wainner and Bocci even address the specific

modification of . . . two separate PWs sharing a link.” *Id.* at 28. Here, as depicted in annotated Figure 2 of Wainner in the Petition, Petitioner relies on Wainner, and not Bocci, for teaching two separate multi-segment pseudo-wires sharing a link. *See* Pet. 28–31; Ex. 1030, Fig. 2.

As Petitioner clarifies, “Wainner does disclose these elements,” wherein “Bocci would have supplemented Wainner’s disclosures.” Pet. 24. Petitioner contends that “Wainner itself explains that it teaches a ‘particular embodiment of a method for providing point-to-multipoint multihop distribution using Pseudo[-]wires (PWs)’ that avoids scalability problems.” *Id.* at 25 (citing Ex. 1030 ¶ 6). Further, Petitioner contends that Bocci also “explains that implementing multi-segment pseudo-wires provides scalability benefits.” *Id.* (citing Ex. 1031, 3–4). Based on this current record, we find availing Petitioner’s contention that “both Wainner and Bocci contain teachings, suggestions, and motivations to combine the references together.” *Id.* (citing Ex. 1040 ¶ 62).

On this preliminary record, we are persuaded that Petitioner has made a sufficient showing that the combination of Wainner in view of Bocci teaches “setting up a second pseudo-wire between said input router and a second output router [], wherein the second pseudo-wire comprises said first link and a third link set up between said intermediate router and said second output router,” wherein “said first link being shared by the first and second pseudo-wires,” as recited in claim 1. Furthermore, based on this preliminary record, we are persuaded that Petitioner has made a sufficient showing that a POSITA would have had a reason to combine the teachings of Warner and Bocci.

iv. *Claim 1 Conclusion*

For the foregoing reasons, we determine that the evidence and arguments presented show a reasonable likelihood that Petitioner would prevail in establishing that the subject matter of claim 1 would have been obvious over Wainner and Bocci.

v. *Claim 6*

Petitioner provides detailed explanations as to how the combination of Wainner and Bocci renders the limitations as recited in claim 6 obvious, citing Dr. Bhattacharjee’s testimony for support. Pet. 53–55 (citing Ex. 1030 ¶¶ 7, 9, 35–38; Ex. 1040 ¶¶ 99–104).

At this stage in the proceeding, Patent Owner does not address separately these explanations and supporting evidence by Petitioner regarding claim 6. *See generally* Prelim. Resp. 20–28.

Having reviewed Petitioner’s arguments and supporting evidence in the present record, we determine Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claim 6 would have been obvious over the combination of Wainner and Bocci.

D2. *Claims 1 and 6 as obvious over Kamite and Bocci (Ground 2)*

With respect to Ground 2, Petitioner contends that claims 1 and 6 of the ’775 patent would have been obvious in view of Kamite and Bocci. Pet. 55–80. In response, Patent Owner contends that the Petition fails to present a reasonable likelihood of prevailing with respect to Ground 2. Prelim. Resp. 28–36.

We summarize the asserted art to Kamite below.

1. *Kamite*

Kamite is directed to establishing a multicast circuit for making it possible to “forward pseudo[-]wire traffic using a multicast tunnel.”

Ex. 1041, codes (54), (57). In particular, Kamite recognizes that using a multicast tunnel can reduce the volume of traffic between provider edge routers (PEs). *Id.* ¶ 7. Kamite explains that, with conventional pseudo-wire technology, “the upstream PE communicates using pseudo[-]wire technology by establishing a separate unicast tunnel with each of the multiple downstream PEs.” *Id.* ¶ 6. An illustration of Kamite’s environment for forwarding pseudo-wire traffic using unicast tunnel technology is depicted in Figure 3 reproduced below.

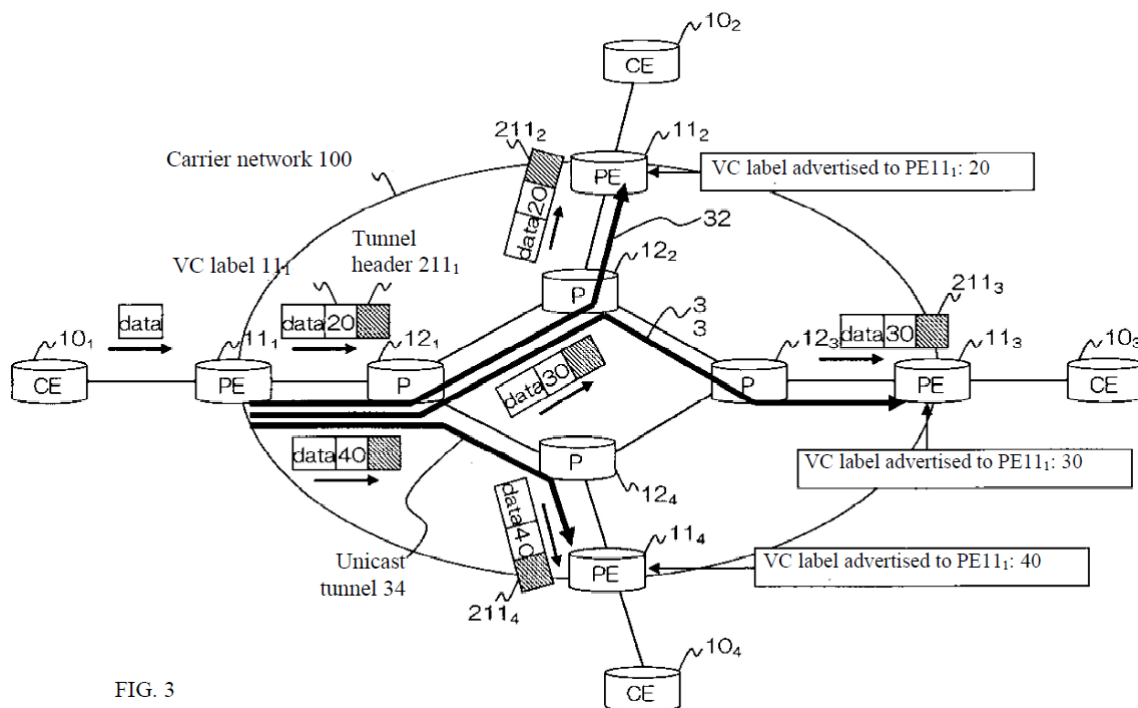


Figure 3 shows a tunneling technology, which includes customer edge routers (CEs): CE10₁, CE10₂, CE10₃, and CE10₄; provider routers (Ps): P12₁, P12₂, P12₃, and P12₄; and provider edge routers (PEs): PE11₁, PE11₂, PE11₃, and PE11₄. *Id.* ¶¶ 2–3, 6–7, Fig. 3. As shown in Figure 3, separate unicast tunnels 32–34 are established between PE11₁ and PE11₂, and between PE11₃ and PE11₄, respectively. *Id.* ¶ 7. Kamite explains that, while

“the actual data to be transmitted (the data to be transmitted from CE10₁) is the same, there are three instances of traffic between PE11₁ and PE12₁.” *Id.*

An illustration of Kamite’s environment for forwarding pseudo-wire traffic using multicast tunnel technology is depicted in Figure 10 reproduced below.

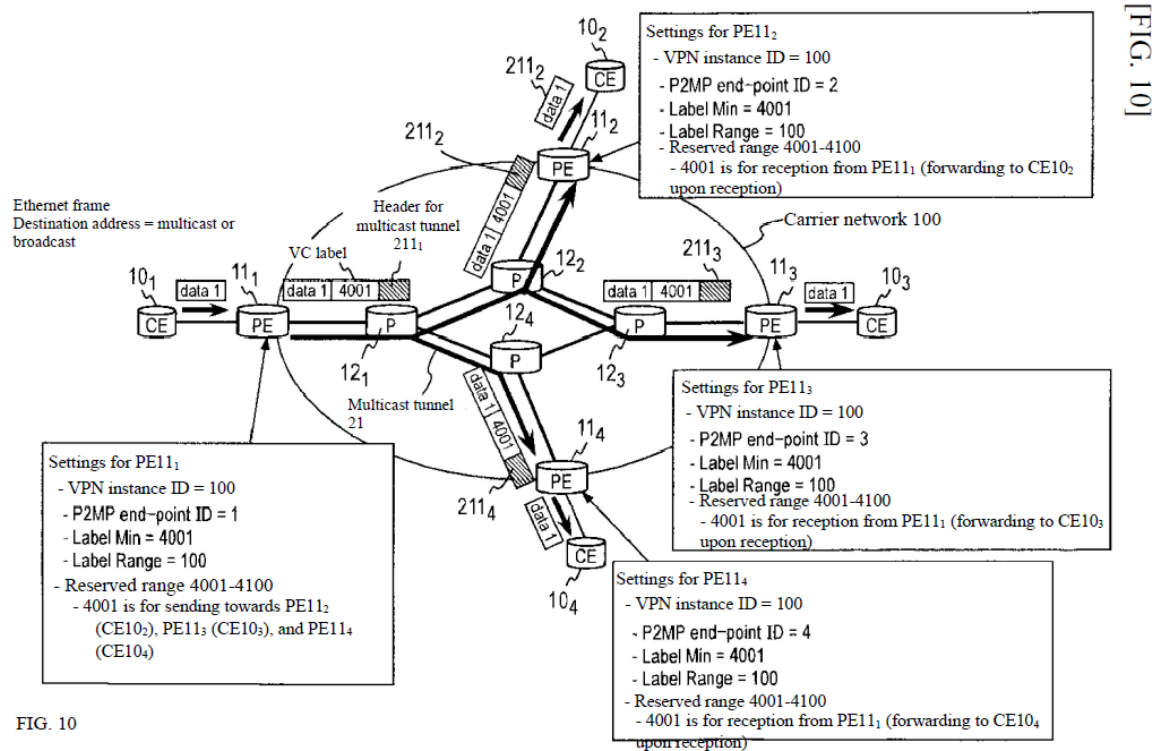


FIG. 10

Figure 10 shows tunneling technology in which the upstream PE (PE11₁) confirms the virtual circuit label switching path (VC-LSP) for each downstream PE (PE11₂, PE11₃, and PE11₄) for initiating forwarding of traffic. *Id.* ¶ 16. As shown in Figure 10, multicast tunnel 21 is established between PE11₁ and PE11₂, and between PE11₃ and PE11₄, respectively. *Id.* Kamite explains that once VC-LSPs are successfully established between PEs, “point-to-multipoint pseudo[-]wire can be used for communicating between those PEs.” *Id.* ¶ 17.

2. Analysis of Claims 1 and 6 over Kamite and Bocci

Petitioner contends that Kamite implements pseudo-wires on a multicast network. Pet. 55 (citing Ex. 1041, 5–6). Referring to Kamite’s Figure 3, Petitioner contends Kamite illustrates “how to implement three separate pseudo-wires that share a first link—*i.e.*, the singular connection between PE11₁ and P12₁.” *Id.* at 56 (citing Ex. 1040 ¶ 106; Ex. 1041, Fig. 3) (emphasis omitted). Petitioner provides an annotated Figure 3 of Kamite to illustrate its contentions.

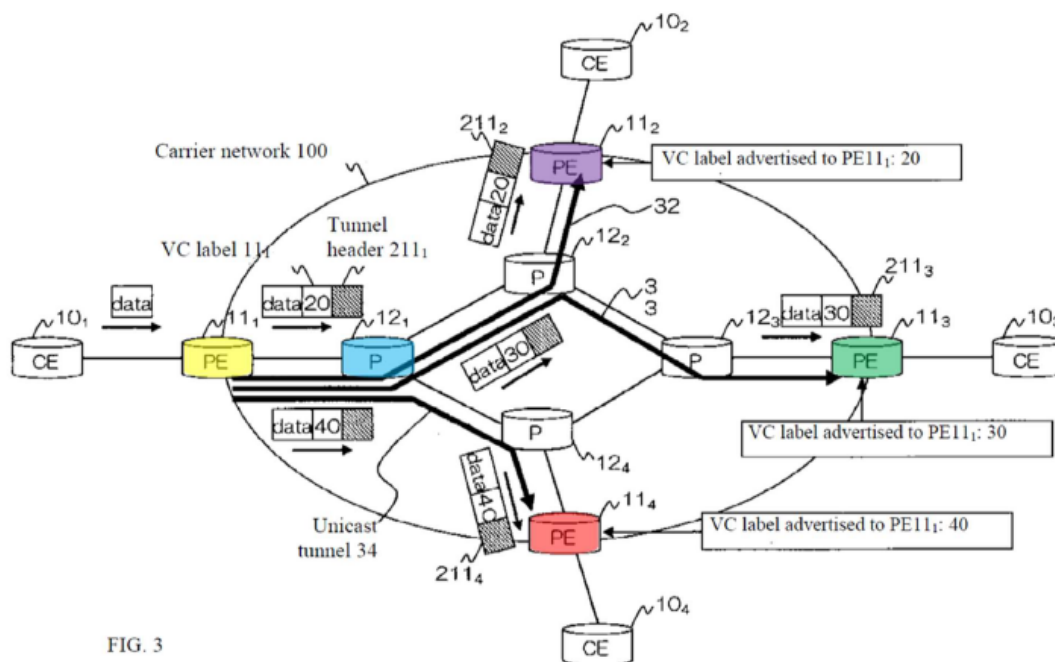
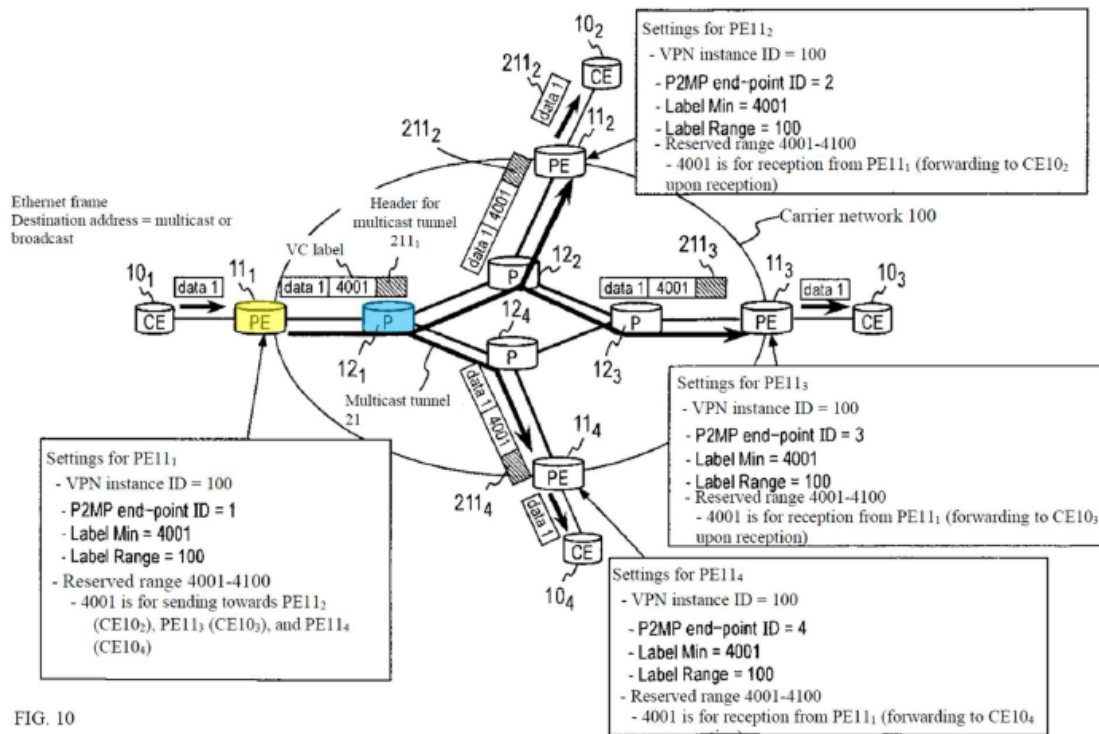


FIG. 3

Pet. 56. The above annotated Figure 3 of Kamite in the Petition, according to Petitioner, depicts “[a] PE11₁ [(yellow)] [, which] establishes separate unicast tunnels with PE11₂ [(purple)], PE11₃ [(green)], **and** PE11₄ [(red)], copies the data that was sent from CE10₁, and transmits that data after assigning the advertised VC label **for each** downstream PE.” *Id.* (citing Ex. 1041, 6, 13, Fig. 3). Petitioner further contends Kamite discloses that “there are three instances of traffic between PE11₁ [(yellow)] and P12₁ [(blue)],” and utilizing a multicast tunnel could reduce “the traffic between

PE11₁ and P12₁ [by] 1/3 of the conventional volume.” *Id.* (citing Ex. 1041, 6).

According to Petitioner, Kamite Figure 10 illustrates how to implement a multicast tunnel in a pseudo-wire network. Pet. 57 (citing Ex. 1041, Fig. 10). Petitioner provides an annotated Figure 10 of Kamite to illustrate its contentions.



Pet. 57. The above annotated Figure 10 of Kamite in the Petition, according to Petitioner, depicts “establish[ing] a ‘point-to-multipoint pseudo[-]wire’ such that there is only a single connection, or link, between PE11₁ (yellow) and P12₁ (blue), which is shared between the multiple pseudo-wires.” *Id.* (citing Ex. 1041, 9, Fig. 10; Ex. 1040 ¶ 107).

We address in detail Petitioner’s contentions and Patent Owner’s arguments with respect to the limitations of representative claim 1 in

subsections *i–iv* below, and with respect to the limitations of claim 6 in subsection *v*.

- i. Preamble, a “method of setting up at least two pseudo-wires able to broadcast a data stream”*

Petitioner contends that, “[t]o the extent [that] the preamble is limiting, Kamite and Bocci would have rendered obvious [the preamble].” Pet. 62 (citing Ex. 1040 ¶¶ 115–121). In particular, according to Petitioner, “Kamite teaches establishing multiple pseudo-wires that propagate throughout a network,” which “broadcast data” wherein “[t]he data in Kamite corresponds to the ’775 patent’s data stream.” *Id.* at 62–63 (citing Ex. 1041, 6, 8–9).

At this stage of the proceeding, Patent Owner does not present arguments in the Preliminary Response addressing the specific merits of Petitioner’s contentions with respect to the preamble. *See generally* Prelim. Resp. 28–36.

Having reviewed all of Petitioner’s assertions regarding this claim language, as well as the supporting evidence, we determine on this record that Petitioner has established a reasonable likelihood of establishing that the combination of Kamite and Bocci teaches a “method of setting up at least two pseudo-wires able to broadcast a data stream.”

- ii. “setting up a first pseudo-wire comprising a first link set up between an input router [] and an intermediate router [] and a second link set up between said intermediate router and a first output router”

Petitioner contends that “[t]he network in [Kamite’s] Figure 10 corresponds to the ’775 patent’s packet-switched network.” Pet. 68. Petitioner provides an annotated Figure 10 of Kamite, shown below, to illustrate its contentions.

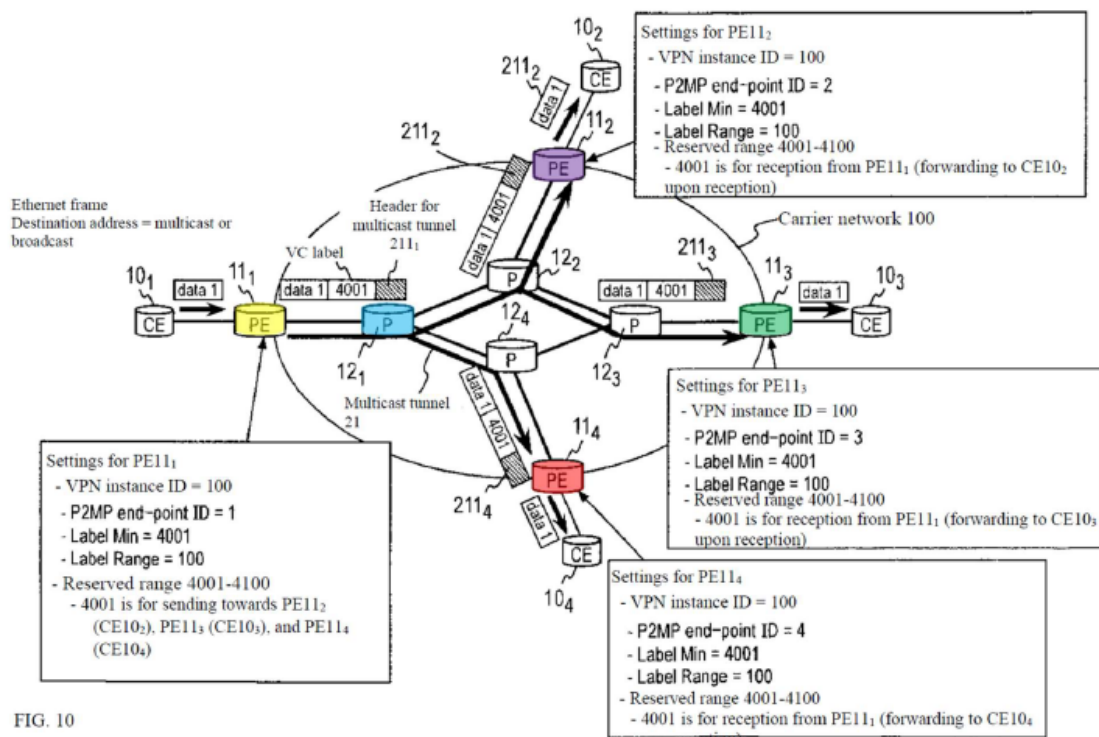


FIG. 10

Pet. 68. The above annotated Figure 10 of Kamite in the Petition, according to Petitioner, illustrates “packets routed across the network,” and “a first pseudo-wire, represented by the arrow from PE111 [(yellow)] to PE112 [(purple)].” *Id.* at 69, 71 (citing Ex. 1041, Fig. 10; Ex. 1040 ¶ 129). Petitioner contends that “PE111 (yellow) corresponds to the ’775 patent’s input router,” “PE121 (blue) corresponds to the ’775 patent’s intermediate router,” and “PE112 (purple) corresponds to the ’775 patent’s output router.”

Id. at 68, 70 (citing Ex. 1041, 6, Fig. 10; Ex. 1040 ¶¶ 124–125). According to Petitioner, “the connection between PE11₁ and P12₁ corresponds to the ’775 patent’s ‘first link,’” and “the connection between P12₁ and PE11₂ corresponds to the ’775 patent’s ‘second link,’” wherein these “components form a first pseudo-wire.” *Id.* at 69, 71 (citing Ex. 1040 ¶¶ 126, 129).

Petitioner contends that a POSITA would know “each link in a pseudo-wire connects from an interface of a first router to an interface of a second router,” meaning “the connections between routers in Kamite correspond to the ’775 patent’s links.” Pet. 69–70 (citing Ex. 1040 ¶ 126). According to Petitioner, “Kamite sets up its pseudo-wires according to a type length variable (‘TLV’), which ‘is a unit of information storage,’” wherein “[t]he TLV contains an ‘Interface Parameter’ that is ‘used in the conventional point-to-point pseudo wire specification.’” *Id.* at 69 (citing Ex. 1041, 8). Petitioner contends that a POSITA would know the Interface Parameter “specifies how the pseudo-wire connects to a particular interface” for “verifying that the ‘ingress and egress ports at the edges of the circuit have the necessary capabilities to interoperate with each other.’” *Id.* (citing Ex. 1037, 14; Ex. 1040 ¶ 126); *see also* Ex. 1010, 3–4.

According to Petitioner, “the ’775 patent itself admits that multi-segment pseudo-wires were known in the art,” wherein “the pseudo-wires depicted in Kamite comprise multiple segments.” Pet. 71 (citing Ex. 1001, 1:53–2:2, 5:40–42; Ex. 1041, Figs. 3, 10). Further, according to Petitioner, Kamite’s steps 2 and 3 describe “setting up pseudo-wires between each PE—for example, from PE11₁ and PE11₂.” *Id.* at 72 (citing Ex. 1041, 7–8). Thus, Petitioner contends “Kamite alone teaches the ‘first pseudo-wire’ limitation of claim 1.” *Id.* (citing Ex. 1040 ¶ 130).

Additionally, Petitioner contends that a POSITA would have found it obvious to combine Kamite and Bocci “such that Kamite would operate in its disclosed manner and further implement Bocci’s teaching of combining consecutive pseudo-wires to form a multi-segment pseudo-wire.” Pet. 72 (citing Ex. 1040 ¶ 131). Petitioner contends that “[t]he resulting multi-segment pseudo-wire, Bocci explains, ‘is a single PW’ that ‘is indistinguishable from a SS-PW,’ i.e., a single-segment pseudo-wire.” *Id.* at 72–73 (citing Ex. 1031, 7) (emphasis omitted). Thus, Petitioner contends that “Kamite in combination with Bocci would have taught this limitation as well.” *Id.* at 72 (citing Ex. 1040 ¶ 131).

Patent Owner argues that Petitioner’s Ground 2 “relies on conflating ‘tunnels’ . . . with ‘PWs’—two concepts that Petitioner’s own references explain are distinct.” Prelim. Resp. 28. According to Patent Owner, “the edge between [Kamite’s] PE11₁ (yellow) and P12₁ (blue) represents a tunnel, not a PW.” *Id.* at 30 (citing Ex. 1041, Fig. 10).

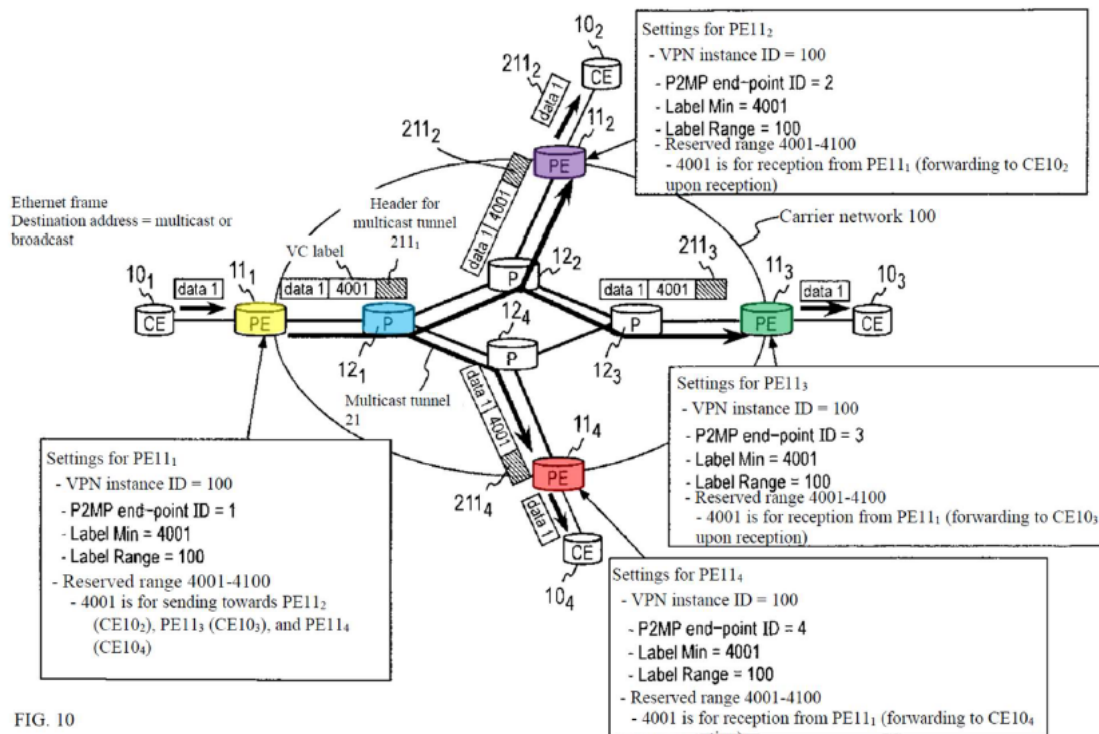
Based on the current record, we find Patent Owner’s arguments unavailing. Patent Owner acknowledges that Kamite discloses “pseudo[-]wire technology” with multiple “instances of traffic between PE11₁ and P12₁.” Prelim. Resp. 33 (citing Ex. 1041, 6). As Petitioner contends, Kamite’s steps 2 and 3 describe “setting up pseudo-wires between each PE—for example, from PE11₁ to PE11₂.” Pet. 72 (citing Ex. 1041, 7–8). In particular, Kamite discloses tunneling technology which includes sending multicast data between routers using pseudo-wire technology. *See* Ex. 1041 ¶¶ 6–8, 10, 16, 23, Figs. 2, 3, 10. Accordingly, we find availing Petitioner’s reliance on Kamite’s tunneling technology for teaching “setting up a first pseudo-wire,” as recited in claim 1.

Further, as discussed above, the parties agree to the construction of “link” as a “connection between an interface of a first router and an interface of a second router.” *See* Pet. 19; Prelim. Resp. 18. As Petitioner contends, Kamite discloses setting up its pseudo-wires according to a TLV that contains an Interface Parameter “used in conventional point-to-point pseudo wire specification,” and a POSITA would understand the Interface Parameter “specifies how the pseudo-wire connects to a particular interface.” Pet. 69 (citing Ex. 1041, 8; Ex. 1040 ¶ 126). Accordingly, on this current record, we find availing Petitioner’s reliance on Kamite’s connection between PE11₁ and P12₁ for teaching a link, i.e., a connection between an interface of PE11₁ and an interface of P12₁. *Id.* at 69–71 (citing Ex. 1041, 7–8, Figs. 3, 10; Ex. 1040 ¶¶ 126–127). We also find availing Petitioner’s reliance on Kamite’s connection between P12₁ and PE11₂ as a link between P12₁ and PE11₂. *Id.* at 71 (citing Ex. 1040 ¶ 129). Further, we find availing Petitioner’s reliance on Kamite’s connections between PE11₁ and P12₁ and between P12₁ and PE11₂, as separate PW segments put together, forming a “first pseudo-wire,” as claimed in claim 1. *Id.* Here, Petitioner relies on the teachings of Bocci, wherein Bocci explains how to “‘concatenate PW segments’ to form a ‘multi-segment PW.’” *Id.* at 72; *see also* Ex. 1031, 4.

On this preliminary record, we are persuaded that Petitioner has made a sufficient showing that the combination of Kamite in view of Bocci teaches “setting up a first pseudo-wire comprising a first link set up between an input router [] and an intermediate router [] and a second link set up between said intermediate router and a first output router,” as recited in claim 1.

- iii. “setting up a second pseudo-wire between said input router and a second output router [], wherein the second pseudo-wire comprises said first link and a third link set up between said intermediate router and said second output router,” “said first link being shared by the first and second pseudo-wires”

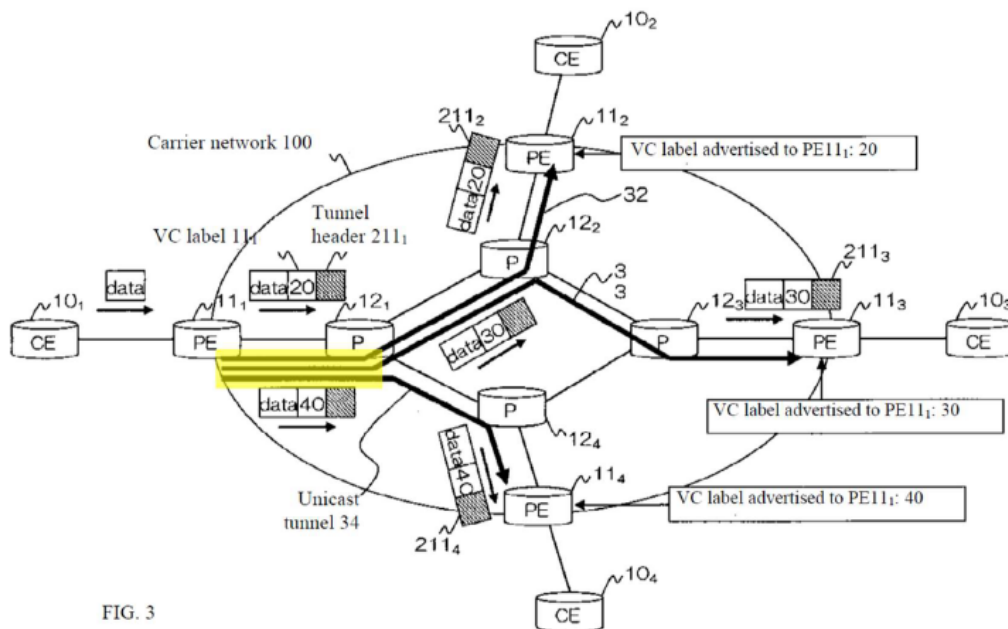
Petitioner contends that “Kamite discloses setting up a second pseudo-wire between the input router and a second output router.” Pet. 74 (citing Ex. 1040 ¶ 136). Petitioner provides an annotated Figure 10 of Kamite, shown below, to illustrate its contentions.



Pet. 75. The above annotated Figure 10 of Kamite in the Petition, according to Petitioner, illustrates “the arrow from PE111 to PE114 correspond[ing] to the ’775 patent’s ‘second pseudo-wire,’” where “Kamite’s PE111 (yellow) corresponds to the ’775 patent’s input router” and “Kamite’s PE 114 [(red)] corresponds to the ’775 patent’s second output router.” *Id.* (citing Ex. 1041,

Fig. 10). Specifically, “Kamite’s second pseudo-wire comprises the first link from input router PE11₁ (yellow) to intermediate router P12₁ (blue) and a third link from the intermediate router P12₁ (blue) to the second output router PE11₄ (red).” *Id.* (citing Ex. 1040 ¶ 137). That is, Petitioner contends that “the connection between intermediate router P12₁ (blue) and the output router PE11₄ (red) is a ‘link,’” wherein Kamite in combination with Bocci teach “combining Kamite’s segments into a multi-segment pseudo-wire that spans from the input router PE11₁ to the output router PE11₄.” *Id.* at 76 (citing Ex. 1040 ¶ 138).

Petitioner then contends that Kamite’s “first link (*e.g.*, **the link between PE11₁ and P12₁**) is shared by the first and second pseudo-wires.” Pet. 77 (citing Ex. 1040 ¶ 138). Petitioner provides annotated Figures 3 and 10 of Kamite, shown below, to illustrate its contentions.



Pet. 77. The above annotated Figure 3 of Kamite, according to Petitioner, illustrates “three-pseudo wires (highlighted in yellow) traverse a single link between PE11₁ and P12₁.” *Id.* (citing Ex. 1041, Fig. 3).

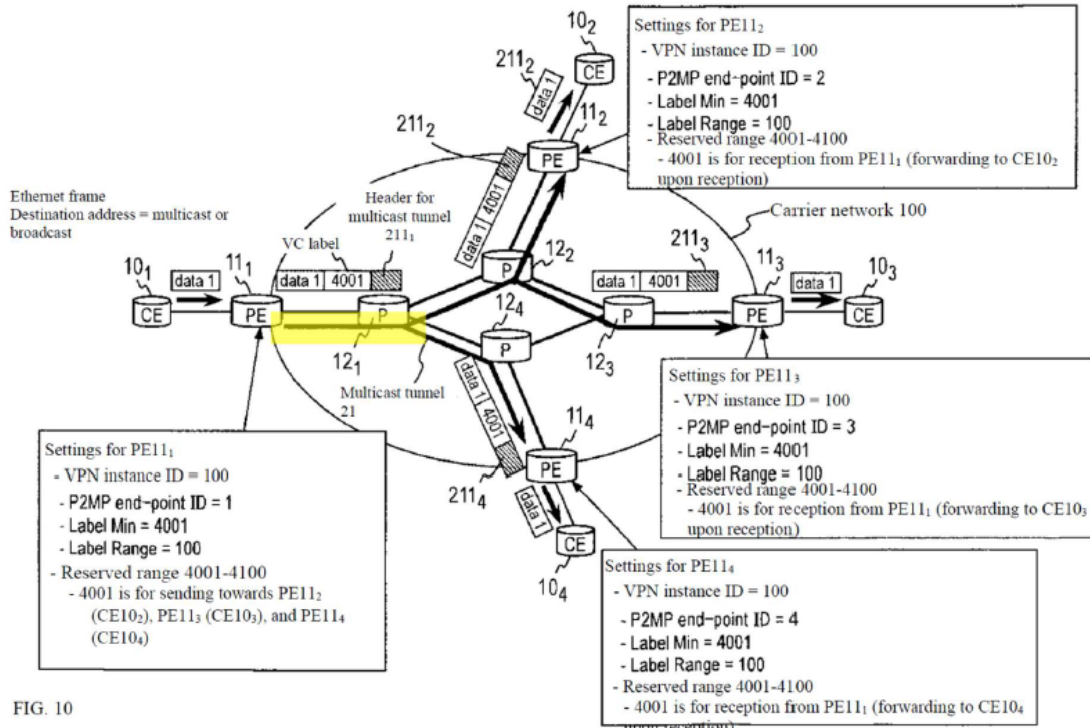


FIG. 10

Pet. 78. The above annotated Figure 10 of Kamite, according to Petitioner, illustrates “shar[ing] this link [(highlighted in yellow)] more efficiently by sending data across the shared link only once, when possible.” *Id.* (citing Ex. 1041, 7–9, Fig. 10). Petitioner contends, “Kamite therefore discloses that this ‘first link’ is shared by the first and second pseudo-wires in both Figures 3 and 10.” *Id.* (citing Ex. 1040 ¶ 140).

Patent Owner argues that Kamite “fails to teach two pseudo[-]wires sharing one link.” Prelim. Resp. 28. In particular, Patent Owner contends that “[Kamite’s] Figure 10 shows only one pseudo[-]wire between the input and intermediate routers, not two pseudo[-]wires sharing one link as required by the claims. *Id.* at 32. Although Patent Owner acknowledges that Kamite’s Figure 3 discloses “‘conventional pseudo[-]wire technology’ in which ‘there are three instances of traffic between PE111 and P121’” (*id.* at 33 (citing Ex. 1041, 6)), Patent Owner contends that “the three tunnels in

Figure 3 do not share a ‘first link’—they use three separate links.” *Id.*

Patent Owner further argues that, because Kamite teaches “assign[ing] each pseudo[-]wire an ‘Interface Parameter,’” Kamite “does not teach that pseudo[-]wires can share the same interfaces.” *Id.* at 35 (citing Ex. 1041, 8).

We find Patent Owner’s arguments unavailing. As discussed above, we find availing Petitioner’s reliance on Kamite’s connection between PE11₁ and P12₁ for teaching a link between an interface of PE11₁ and an interface of P12₁, and Petitioner’s reliance on Kamite’s connection between P12₁ and PE11₂ for teaching a link between an interface of P12₁ and an interface of PE11₂. Pet. 69–71 (citing Ex. 1041, 7–8, Figs. 3, 10; Ex. 1040 ¶¶ 126–127, 129). We further find availing Petitioner’s reliance on Kamite’s connections, between P12₁ and PE11₂ and between PE11₁ and P12₁, for teaching separate pseudo-wire segments put together to form a first pseudo-wire. *Id.* at 71 (citing Ex. 1041 ¶ 129). Similarly, we find availing Petitioner’s reliance on Kamite’s connection between P12₁ and PE11₄ for teaching a link between PE12₁ and PE11₄, and Petitioner’s reliance on Kamite’s connections between PE11₁ and P12₁ and between P12₁ and PE11₄, put together as a single multi-segment pseudo-wire, which “corresponds to the ’775 patent’s ‘second pseudo wire.’” *Id.* at 75.

Accordingly, we find availing Petitioner’s contention that Kamite’s “first link (e.g., the link between PE11₁ and P12₁) is shared by the first and second pseudo-wires.” Pet. 76 (citing Ex. 1040 ¶ 139) (emphases omitted). That is, we find availing Petitioner’s contention that a first multi-segment pseudo-wire comprising pseudo-wire segments consisting of the links (the links between PE11₁ and P12₁ and between P12₁ and PE11₂) share a “first link,” i.e., the link between PE11₁ and P12₁ with a second multi-segment pseudo-wire comprising segments consisting of the links (the links between

PE11₁ and P12₁ and between P12₁ and PE11₄). *Id.* at 76–78 (citing Ex. 1041, 7–9, Figs. 3, 10; Ex. 1040 ¶¶ 139–141).

We are not persuaded by Patent Owner’s contention that Kamite Figure 10 only illustrates one pseudo-wire between the input router (PE11₁) and intermediate router (P12₁). Prelim. Resp. 32. As Patent Owner acknowledges, Kamite’s connection (link between PE11₁ and P12₁), highlighted in yellow in annotated Figure 10 of Kamite in the Petition, is shown as a “link.” *Id.* Although Patent Owner contends that Kamite, as shown in Figure 10, does not disclose “two pseudo[-]wires sharing one link as required by the claims” (*id.*), we find availing Petitioner’s reliance on Kamite’s links between PE11₁ and PE11₂ as two pseudo-wire segments of a first multi-segment pseudo-wire, and Petitioner’s reliance on Kamite’s links between PE11₁ and PE11₄ as two pseudo-wire segments of a second multi-segment pseudo-wire, wherein the two multi-segment pseudo-wires share the link between PE11₁ and P12₁. Pet. 69, 71, 74–76, 78 (citing Ex. 1041, Fig. 10; Ex. 1040 ¶¶ 126, 129, 136, 139–140).

As Patent Owner acknowledges, Kamite’s Figure 3 shows “conventional pseudo[-]wire technology” in which three instances of traffic flow on the link between PE11₁ and P12₁. Prelim. Resp. 33 (citing Ex. 1041, 6). We are not persuaded by Patent Owner’s contention that “the three tunnels in Kamite’s Figure 3 do not share a ‘first link’” because “they use three separate links.” *Id.* As discussed above, the parties agree to the proposed construction of “link” as a “connection between an interface of a first router and an interface of a second router.” *See* Pet. 19; Prelim. Resp. 18. Thus, although Patent Owner contends that Kamite “does not teach that pseudo[-]wires can share the same interfaces” (Prelim. Resp. 35), we instead find availing Petitioner’s contention that Kamite’s multi-segment

pseudo-wires share the link between input router PE11₁ and intermediate router P12₁. Pet. 69, 71, 74–76, 78 (citing Ex. 1041, Fig. 10; Ex. 1040 ¶¶ 126, 129, 136, 139–140).

On this preliminary record, we are persuaded that Petitioner has made a sufficient showing that the combination of Kamite in view of Bocci teaches “setting up a second pseudo-wire between said input router and a second output router [], wherein the second pseudo-wire comprises said first link and a third link set up between said intermediate router and said second output router,” wherein “said first link being shared by the first and second pseudo-wires,” as recited in claim 1. Furthermore, on this preliminary record, we are persuaded that Petitioner has made a sufficient showing that a POSITA would have had a reason to combine the teachings of Kamite and Bocci

iv. Claim 1 Conclusion

For the foregoing reasons, we determine that the evidence and arguments presented show a reasonable likelihood that Petitioner would prevail in establishing that the subject matter of claim 1 would have been obvious over Kamite and Bocci.

v. Claim 6

Petitioner provides detailed explanations as to how the combination of Kamite and Bocci renders the limitations as recited in claim 6 obvious, citing Dr. Bhattacharjee’s testimony for support. Pet. 78–80 (citing Ex. 1041, claim 17; Ex. 1040 ¶¶ 142–147).

At this stage in the proceeding, Patent Owner does not address separately these explanations and supporting evidence by Petitioner regarding claim 6. *See generally* Prelim. Resp. 28–36.

Having reviewed Petitioner's arguments and supporting evidence in the present record, we determine Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claim 6 would have been obvious over the combination of Kamite and Bocci.

III. CONCLUSION

Because we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing at least one of the challenged claims is unpatentable, we institute *inter partes* review as to all challenged claims and grounds presented in the Petition. At this stage of the proceeding, we have not made a final determination as to the patentability of any of these challenged claims.

IV. ORDER

For the reasons given, it is

ORDERED that pursuant to 35 U.S.C. § 314, an *inter partes* review is instituted as to all claims challenged on all grounds, i.e., claims 1 and 6 of the '775 patent to determine whether:

- 1) claims 1 and 6 are unpatentable under 35 U.S.C. § 103 as obvious over Wainner and Bocci; and
- 2) claims 1 and 6 are unpatentable under 35 U.S.C. § 103 as obvious over Kamite and Bocci; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this Decision.

IPR2024-00561

Patent 8,130,775 B2

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