

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARISTA NETWORKS, INC.,
Petitioner,

v.

CORRIGENT CORPORATION,
Patent Owner.

Case IPR2023-00839

Patent 9,118,602

PATENT OWNER RESPONSE

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Pursuant to 37 C.F.R. § 42.120, Patent Owner Corrigent Corporation (“Patent Owner”) respectfully submits this Response to the Petition filed by Petitioner Arista Networks, Inc. (“Petitioner”) regarding U.S. Patent No. 9,118,602 (Ex.1001, “’602 patent”).

I. Introduction

The ’602 patent recites sending a data packet via an assigned single physical tunnel port of a “LAG” between two MPLS/LAG switches, among other limitations. The Petition raises two Grounds: Ground 1 asserting obviousness based on RFC 3209 (Ex.1010) in view of Raz (Ex.1006), and Ground 2 asserting obviousness based on RFC 3209 in view of Raz and Ferguson (Ex.1007). Both, however, fail to establish that the challenged claims are unpatentable.

For Ground 1, Petitioner relies on Raz for the claimed LAG, but Raz does not disclose a LAG. Further, Petitioner does not and cannot explain why or how Raz, which specifically relates to *inside* a network device (*e.g.*, a switch), would have been modified to apply to a LAG *between* two MPLS/LAG switches, or RFC 3209 would have been modified based on Raz given the incompatibility between their relied-upon teachings. Regardless, the proposed combination would not meet the claims.

Ground 2 relies on RFC 3209 and Raz in the same manner as Ground 1 and fails for the same reasons. Also, Petitioner fails to explain why or how RFC 3209 and/or Raz would have been modified based on Ferguson.

Moreover, Petitioner fails to provide a “reasonable expectation of success” for both Grounds.

For at least the reasons set forth herein, Petitioner has failed to meet its burden to prove that the ’602 patent claims are unpatentable.

A. Grounds and Challenged Claims

The Board instituted review on the following obviousness grounds. Paper 8 at 4, 14.

Ground	Claims Challenged	§ 103(a) References
1	1-26	RFC 3209, Raz
2	1-26	RFC 3209, Raz, Ferguson

The challenged claims include three independent claims: 1, 15, and 26. Claim 1 is directed to a method for assigning and utilizing a single physical tunnel port of a Link Aggregation Group (LAG) between two MPLS/LAG switches.¹

¹ The claim term “second M[]PLS/LAG switch” in claims 1 and 26 is written as “second MPLS/LAG switch” in this Response, with alteration omitted.

Ex.2007 ¶¶38-39. Claim 26 is similar to claim 1 but with an additional limitation (26.1).² Ex.2007 ¶40. Claim 15 is an apparatus claim comparable to method claim 1 but also reciting a “processor” and “mapper” configured to perform certain limitations (15.2–15.4 and 15.6–15.8, respectively). Ex.2007 ¶41.

B. Claim Construction

For purposes of this Response, Patent Owner adopts Petitioner’s claim construction position. Pet. 4; Ex.2007 ¶¶35-36. Patent Owner notes that the preamble of claim 15 and the term “RSVP-TE” were construed in co-pending district court litigation, and Patent Owner’s positions herein apply equally under those constructions. Ex.2014 at 3-4; Ex.2007 ¶37.

C. Person of Ordinary Skill in the Art

Petitioner proposes a definition of a person of ordinary skill in the art (“POSA”) as of the priority date of the ’602 patent (May 6, 2005). Pet. 4. For purposes of this Response, Patent Owner uses the same definition of a POSA. Ex.2007 ¶¶21-24.

² For purposes of this Response, Patent Owner uses claim limitation numbering provided in Petition Appendix A. Pet. 15 n.3, A-1.

D. Legal Framework

Petitioner must prove that the '602 patent's claims are obvious by a preponderance of the evidence. 35 U.S.C. § 316(e). Obviousness requires a showing that (1) all of the claimed limitations are found in the prior art reference(s) and (2) a POSA would have been motivated to modify or combine the prior art reference(s) to achieve the claimed invention. *Univ. of Strathclyde v. Clear-Vu Lighting LLC*, 17 F.4th 155, 160 (Fed. Cir. 2021); 35 U.S.C. § 103(a) (pre-AIA). Also, a prior art reference must be considered in its entirety, including portions that would lead away from the claimed invention. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987).

An IPR petition must state “[h]ow the construed claim is unpatentable under [35 U.S.C. § 103],” and “must specify where each element of the claim is found in the prior art.” 37 C.F.R. § 42.304(b)(4). Conclusory statements are insufficient to demonstrate obviousness. *Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1286 (Fed. Cir. 2017); *e.g.*, *SAS Inst., Inc. v. ComplementSoft, LLC*, IPR2013-00581, 2013 WL 8595535, at *6 (PTAB Dec. 30, 2013) (rejecting alleged motivation that “[the combination] would increase the functionality of the [primary reference]”); *Exacq Techs., Inc. v. JDS Techs., Inc.*, IPR2016-00568, 2016 WL 4987613 (PTAB June 14, 2016).

II. Ground 1: The Combination of RFC 3209 and Raz Does Not Render Obvious Claims 1-26

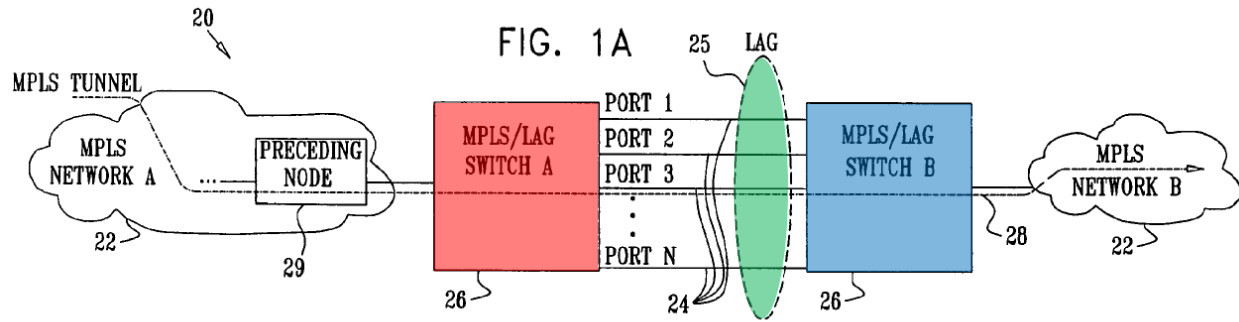
Petitioner has failed to show that claims 1-26 of the '602 patent are obvious over RFC 3209 in view of Raz.

A. Neither RFC 3209 Nor Raz Discloses or Renders Obvious a “LAG”

Each independent claim of the '602 patent recites a “LAG” (Link Aggregation Group) for communicating between a “first MPLS/LAG switch” and a “second MPLS/LAG switch,” and this LAG is implicated in nearly every claim limitation. Ex.1001 at claims 1, 15, 26; Ex.2007 ¶44.

A LAG is a group of network connections (or *links*) that are *between* two network components. Ex.2007 ¶46. The '602 patent explains that a LAG involves a group of “links between two endpoints in a data network.”³ Ex.1001 at 2:1-5; Ex.2007 ¶46. The annotated version of '602 patent Figure 1A below demonstrates how a LAG (green) is *between* a first MPLS/LAG switch (red) and second MPLS/LAG switch (blue), linking these two network devices together.

³ Similarly, the Ferguson reference states that “link aggregation” involves multiple interconnects “between ... two devices.” Ex.1007 at 1:28-42.



Ex.1001 at Fig. 1A (annotated), 3:58-4:34; Ex.2007 ¶46. Ultimately, the '602 patent claims recite a “LAG” connecting a “first MPLS/LAG switch” to a “second MPLS/LAG switch” for sending data packets *between* those two switches “via [a] single physical tunnel port” of the LAG. Ex.1001 at claims 1, 15, 26; Ex.2007 ¶¶46, 38-41, 44; Ex.2008 at 94:22-24.

Neither RFC 3209 nor Raz discloses or renders obvious the claimed “LAG.” Ex.2007 ¶¶43-51. First, RFC 3209 is the RSVP-TE standard and describes the use of RSVP to establish label-switched paths (LSPs) in Multi-Protocol Label Switching (MPLS). Ex.1010 at 1. RFC 3209 does not disclose or render obvious a LAG. Ex.2007 ¶45. Petitioner acknowledges this by not relying on RFC 3209 for the claimed “LAG” and instead relying entirely on Raz for this claim element. Pet. 11-13, 17-19, 23-24, 26-28, 31, 34-36, 50-53; Ex.1003 ¶¶92-99; Ex.2007 ¶45; Ex.2013 at 18:1-14, 18:18-19:5, 11:2-7. But Raz does not disclose or render obvious the claimed “LAG.” Ex.2007 ¶¶45-51.

Raz is directed to using multiple slow-speed *processors*—i.e., “subports”—*within* a network device such as an LSR for processing a *single* high-speed stream between LSRs. Ex.1006 at Abstract, 1:40-2:8, 6:24-33 (“The present invention provides a ... mechanism whereby a plurality of subports comprising slower speed processors are used to perform the packet processing for a higher speed packet stream.”), 6:51-54 (“[I]t is intended that the mechanism of the present invention be implemented in network devices such as routers (e.g., LSRs ...) making up the nodes in a network ...”), Figs. 1-3; Ex.2007 ¶47. Raz describes its subports as internal network *processors*, not *links* between two endpoints of a network. Ex.1006 at 1:40-59, 2:1-2, 2:5-6 (“a network processor or FPGA is used to implement the subport”), 6:25-29, 7:42-45, 7:59-64 (describing implementing the subports as “network processors” or “an FPGA” that can “perform the [required] packet processing”), 10:22-23, Fig. 6 and 12:66-13:5 (referencing subports 128 and 130 as “network processors”); Ex.2007 ¶47. For links between network devices, Raz discloses single links, not LAGs. See Ex.1006 at Figs. 1-3, 6:67-7:5, 8:33-39, 9:39-40, Abstract, 6:34-38, 7:17-26, 7:39-42, 8:46-53; Ex.2007 ¶¶46-48.

This is shown in Raz’s Figures 1 and 3. For example, Raz’s Figure 1, annotated below, shows LSRs connected via a *single* high-speed (10G) link 28 (green) and depicts using a plurality of slow-speed (1G) subports 14 *within* an LSR (red) for processing data received or sent via the single high-speed link 28.

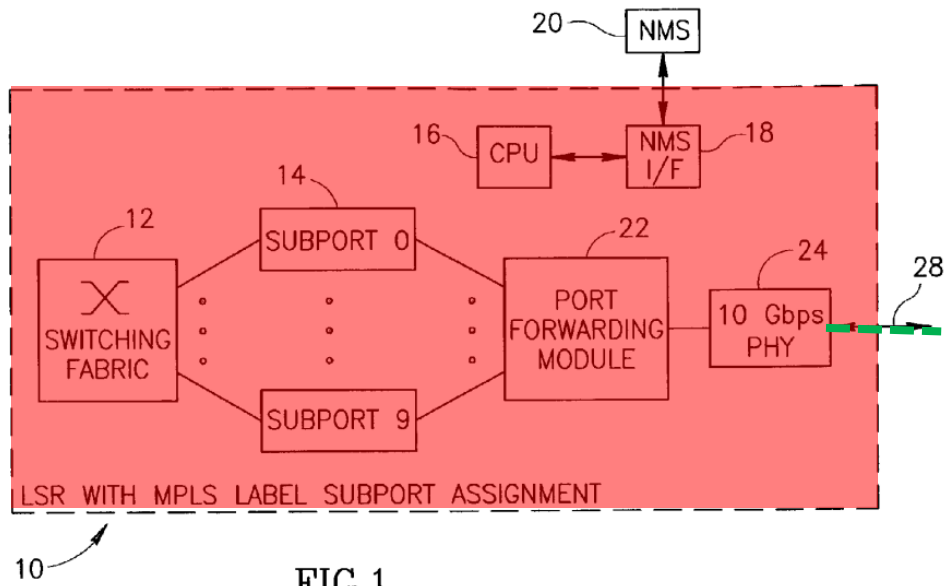


FIG.1

Ex.1006 at Fig. 1 (annotated), 6:65-7:10, 7:59-64; Ex.2007 ¶48; Ex.2008 at 32:14-20, 55:5-23; Ex.2013 at 22:8-23:10. Raz's Figure 3 similarly shows pairs of LSRs each connected via a single high-speed (10G) link (60, 68), where the LSRs on each side of the high-speed links contain within them multiple subports to process data that is received or sent via the high-speed links. Ex.1006 at Fig. 3, 9:29-40; Ex.2007 ¶48; Ex.2008 at 52:13-53:13; Ex.2013 at 34:22-35:12. In fact, both Petitioner and its expert concede that Raz's subports are "within" an LSR. Pet. 6, 17-18, 27, 54-56; Ex.1003 ¶96; Ex.2007 ¶47; Ex.2013 at 22:8-23:10, 28:12-29:3, 34:22-35:12, 37:9-38:3.

Therefore, while Petitioner points to Raz’s multiple subports as disclosing the claimed LAG, Raz’s subports are *processors* strictly *within* a single LSR and thus do not constitute or suggest a group of *links between* two LSRs (i.e., a LAG). Ex.2007 ¶¶45-48.

A LAG also requires aggregation. The ’602 patent references the IEEE 802.3ad link aggregation standard, which states:

Link Aggregation allows one or more links to be aggregated together to form a [LAG], such that a MAC Client can treat the [LAG] as if it were a single link. To this end, it specifies the establishment of DTE to DTE logical links, consisting of N parallel instances of full duplex point-to-point links operating at the same data rate.

Ex.2012 at Abstract; *see* Ex.1001 at 2:1-17, 3:64-4:1; *see also* Ex.1007 at 1:28-32 (referencing IEEE 802.3ad for “link aggregation”); Ex.2007 ¶49.⁴ In other words, a LAG (known as inverse multiplexing) is an aggregation of multiple parallel links, so that packets from a high-speed stream can be spread across multiple low-speed links for transmission. Ex.1001 at 2:1-5; Ex.1007 at 1:28-42; Ex.2009 at Abstract, 473; Ex.2010 at 42-43, Fig. 2; Ex.2011; Ex.2008 at 14:1-2, 99:8-23, 60:5-20; Ex.2013 at 40:13-18; Ex.2007 ¶49.

⁴ The IEEE 802.3ad LAG standard also reinforces that a LAG involves links *between* network devices and is different from, and unrelated to, internal device components like Raz’s subports. *See* Ex.2007 ¶49 n.3.

That differs from Raz, however, because Raz says to “aggregate” the *output* of its multiple subports into a single high-speed packet stream. Ex.1006 at Abstract, 6:36-38, 14:19-22, 2:11-13, 2:47-48, 2:63-64, 6:24-27, Figs. 1, 3, 6; Ex.2007 ¶49. A POSA would have understood this to disclose multiplexing—i.e., an operation where multiple low-speed streams are combined for transmission over a single high-speed link—which is the opposite of inverse multiplexing, such as the claimed LAG. Ex.1006 at Title, 1:1-8, 1:65-66, Abstract, 6:24-27, 6:36-38, 14:19-22; Ex.2009 at Abstract, 473; Ex.2010 at 43, Figs. 1-2; Ex.2011; Ex.2007 ¶49.

In fact, because Raz is directed to *multiplexing* the output of its subports for transmission over a *single* link, Raz would have discouraged a POSA, and thus taught away, from using Raz in connection with a LAG—i.e., a form of *inverse* multiplexing that uses *multiple* parallel links. Ex.1006 at Title, 1:1-8, 1:65-66, Abstract, 6:24-27, 6:36-38, 14:19-22, 2:11-13, 2:47-48, 2:63-64; Ex.2011; Ex.2009 at Abstract, 473; Ex.2010 at 43, Figs. 1-2; Ex.2007 ¶51. Thus, a POSA would not have understood Raz’s subports to constitute or suggest a LAG. Ex.2007 ¶¶49, 51.

Moreover, Raz references a “LAG (Link Aggregation Group)” separately from its subports, which shows that Raz distinguishes between the two. Ex.1006 at 9:9-15; Ex.2007 ¶50. Specifically, that portion of Raz teaches how to *repurpose* a commercially-available LAG-related switch to implement Raz’s subports within an

LSR, demonstrating that Raz's subports are different from a LAG. Ex.1006 at 9:9-15; Ex.2007 ¶50.

B. A POSA Would Not Have Combined RFC 3209 and Raz

The challenged claims are directed to communicating between two MPLS/LAG switches via a single physical tunnel port of a LAG. While RFC 3209 is directed to communicating between network devices, it does not include information regarding the links between devices or disclose or render obvious a LAG. Ex.2007 ¶53. To solve this deficiency, Petitioner asserts that Raz's internal subports constitute a LAG and that a POSA would have taken Raz's internal subport provisioning mechanism and used it in RFC 3209 as part of an "outgoing interface," which RFC 3209 does not expressly disclose, for external communication between devices. Pet. 12-13, 19, 22-23, 26-28, 34; Ex.2007 ¶53; *see also* Ex.2013 at 18:1-14, 18:18-19:5, 11:2-7.

As explained in section II.A above, however, Raz's subports do not constitute or render obvious a LAG. Regardless, as explained below, a POSA would not have combined RFC 3209 and Raz because (1) the references are directed to different problems and solutions, (2) a POSA would not and could not have implemented Raz's subport-related teachings between two network devices in RFC 3209, and (3) RFC 3209's and Raz's assignment and labeling methods are incompatible. Ex.2007 ¶¶52, 54-75.

1. RFC 3209 and Raz Are Directed to Different Problems and Solutions

Unlike Raz, RFC 3209 is concerned with improving communication *between* nodes (e.g., LSRs) of a network. Ex.1010 at 1, 3-5, 8-10; Ex.2007 ¶55. This is demonstrated by how Raz and RFC 3209 treat processor speed. Ex.2007 ¶55. RFC 3209 deals with creating an LSP tunnel comprising a path of nodes in a network, and assumes that the nodes each have sufficient processing capacity to handle the traffic transmitted along the links connecting them. *Id.*; Ex.1010 at 8-10. In contrast, Raz deals with how a node, like an LSR, can handle a high-speed link using slow-speed internal processors (subports). Ex.1006 at Abstract, 1:40-2:3, 6:24-27, 14:6-8, 15:14-17, 16:27-29; Ex.2007 ¶55. This is not an issue in RFC 3209, and a POSA would not have been motivated to modify RFC 3209’s method of provisioning an LSP tunnel *between* nodes of a network based on Raz. Ex.2007 ¶55.

Similarly, RFC 3209 is directed to improving the utilization and efficiency of an MPLS network. Ex.1010 at 1, 3-5, 8; Ex.2007 ¶56. RFC 3209 is concerned with “extensions to RSVP for establishing label switched paths (LSPs) in MPLS networks.” Ex.1010 at 3, 1; Ex.2007 ¶56. Establishing a path, or tunnel, along nodes of an MPLS network is strictly **within the purview of the MPLS protocol**, which relates to correctly routing packets between a source and destination. Ex.2007 ¶56. Raz, however, is directed to improving switch architecture of individual routers and is indifferent to MPLS network engineering. Ex.2007 ¶¶56-57; Ex.1006 at 2:27-32;

Ex.2008 at 27:5–28:3. Raz is concerned with packet processing within a node when the node does not have a high-speed processor. Ex.1006 at Abstract, 1:40-2:3, 6:24-27; Ex.2007 ¶57. This operation *within* a switch is **outside the purview of MPLS** and does not improve utilization or efficiency of how an MPLS network handles a path, or tunnel, along nodes of the network. Ex.2007 ¶57. Thus, a POSA would not have been motivated to use Raz to improve MPLS network engineering as taught in RFC 3209.⁵ *Id.*

Further, RFC 3209 is an Internet standards protocol, and its goal is therefore to “realize *interoperable* implementations” of the RSVP and MPLS protocols. Ex.1010 at 4 (emphasis added), 1, 3; Ex.2007 ¶58. But modifying RFC 3209 to include the subport-related teachings of Raz, either within or between nodes, would result in a *non-interoperable* implementation. Ex.2007 ¶58. For example, Raz requires certain non-standard router architectures and operations that are antithetical to standards such as RFC 3209 that are intended to be interoperable among different types of routers. *Id.* Thus, a POSA would not have been motivated to make such modification. *Id.*

⁵Any disclosures in Raz relate to *accommodating* an MPLS network, not *improving* it. Ex.1006 at 1:52-55, 2:3-5, 6:27-29, 2:27-32; Ex.2007 ¶57; Ex.2008 at 29:1–30:9.

2. A POSA Would Not and Could Not Have Implemented Raz’s Teachings Between Two Network Devices (e.g., MPLS/LAG Switches) in RFC 3209

As explained in section II.A above, the ’602 patent claims involve a LAG *between* two network devices (MPLS/LAG switches) and sending a data packet from one MPLS/LAG switch to another MPLS/LAG switch via an assigned single physical tunnel port of the LAG. As explained in section II.A, Petitioner relies on Raz’s subports for the claimed LAG. But Raz’s subports are strictly *within* a network device, and Petitioner is left stretching Raz’s disclosures by arguing it would have been obvious to apply Raz’s subports and related teachings to communication *between* two LSRs of RFC 3209. *E.g.*, Pet. 19, 27-28, 34-35, 50; *see* Ex.2007 ¶60.

However, a POSA would neither have been motivated to nor capable of implementing Raz’s subport provisioning mechanism *between* two network devices. Ex.2007 ¶¶59, 61-69. First, a POSA would have understood that Raz’s subport provisioning mechanism is specifically for *inside* a network device, and that Raz teaches away from applying its subport-related teachings to external communications between two LSRs. Ex.2007 ¶62; *Panduit Corp.*, 810 F.2d at 1568 (reference must be considered in its entirety, including portions that teach away from the claimed invention). Specifically, Raz addresses concerns related to “high speed packet stream” processing *inside* a network device by providing a “forwarding and

provisioning mechanism that enables a high speed packet stream to be processed by multiple processors that operate at a slower rate than the inbound packet stream.” Ex.1006 at 1:40-2:3, Abstract, 6:24-27 (“The present invention provides a subport forwarding and provisioning mechanism whereby a plurality of subports comprising slower speed processors are used to perform the packet processing for a higher speed packet stream.”); Ex.2007 ¶¶62-63. Indeed, Raz states that “it is intended that the mechanism of the present invention be implemented *in* network devices such as ... LSRs ... making up the nodes in a network” (Ex.1006 at 6:51-54 (emphasis added))—i.e., Raz is intended to be implemented *within* an LSR, not between two LSRs. Ex.2007 ¶63.

Thus, a POSA would have understood that Raz uses multiple subports (i.e., processors) to increase the *internal* processing capacity of an LSR to match the capacity of a single external high-speed link between LSRs and would have been discouraged from using Raz’s subports *between* LSRs. Ex.2007 ¶¶62-63.

Also, because Raz states that the capacity of external links or streams between LSRs exceeds the capacity of internal processors, a POSA would not have been motivated to use multiple external links (e.g., a LAG) to increase the bandwidth between LSRs based on Raz because there is already sufficient capacity of external links. Ex.2007 ¶64; Ex.1006 at 1:40-51.

Moreover, even assuming that a POSA would have been motivated to add a LAG between two network nodes (*e.g.*, LSRs) of RFC 3209 as Petitioner suggests (although there is no motivation), applying Raz's subport provisioning mechanism to communications between two such nodes would have rendered Raz's mechanism "inoperable for its intended purpose." *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984); Ex.2007 ¶¶65-68. Raz's purpose, as evidenced by its title and disclosures, relates to a "link multiplexing mechanism," which involves multiplexing (which Raz refers to as "aggregating") the outputs of its slow-speed subports into a single high-speed stream. Ex.1006 at 1:1-8, 1:65-66, Abstract, 2:11-13, 2:47-48, 2:63-64, 6:24-27, 6:36-38, 14:19-22; *see* Ex.2009 at 473; Ex.2010 at 43, Fig. 1; Ex.2011; Ex.2007 ¶¶66. This multiplexing, however, is the ***opposite*** of a LAG, which is a form of ***inverse*** multiplexing. *See* section II.A *supra*; Ex.2011; Ex.2009 at Abstract, 473; Ex.2010 at 43, Figs. 1-2; Ex.2007 ¶¶67. Thus, a POSA would not and could not have used Raz's multiplexing with data transmitted over the physical tunnel ports of a LAG between LSRs, let alone the "single physical tunnel port" recited in the challenged claims. EX.2007 ¶¶67. Also, Raz's forwarding and provisioning mechanism involves using the same subport for processing a data packet within LSRs on both sides of a link. Ex.1006 at Fig. 3, 2:15-16, 6:38-41, 7:20, 8:46-47; Ex.2007 ¶¶68. But this cannot be done if Raz's subports constitute the outgoing interface for a link between LSRs, as Petitioner asserts. Pet. 28, 34-35; Ex.2007 ¶¶68.

Unable to reconcile these issues, Petitioner ignores and avoids them with a conclusory statement that “[e]ach of the components described by ... Raz would be operating as described in [that] respective reference[]” and that the “same principles” of Raz would also have been applied to transmission between two LSRs. Pet. 14, 27. As described above, however, this is not possible with Raz’s teachings. Ex.2007 ¶¶61-69.

3. RFC 3209’s and Raz’s Respective Assignment and Labeling Methods Are Incompatible

The ’602 patent claims recite a first MPLS/LAG switch (i) assigning a single physical tunnel port of a LAG, and (ii) preparing a data packet label identifying that assigned single physical tunnel port (as in limitations 1.1 and 1.2, respectively). Ex.2007 ¶71. The claims further recite the first MPLS/LAG switch sending a packet via that single physical tunnel port that it assigned and identified in the label per (i) and (ii). *See* Ex.2013 at 50:19–53:1. Petitioner relies on the methods of both RFC 3209 and Raz for (i) and (ii). Pet. 21-32. But the respective relied-upon teachings of RFC 3209 and Raz regarding such assignments and related labels are incompatible. Ex.2007 ¶¶70-75.

Regarding the claimed assignment, Petitioner relies on RFC 3209’s explicit routing and Raz’s subport provisioning mechanism. Pet. 21-29. RFC 3209’s explicit routing involves a given node (*e.g.*, LSR) assigning the next hop—i.e., the next downstream LSR to which the given LSR will *send* packets via an *external*

link. Ex.1010 at 28-30, 9; Ex.2007 ¶72. In contrast, Raz’s mechanism involves a given LSR assigning a subport for the previous hop—i.e., the *internal* subport for processing packets that the given LSR will *receive*. Ex.1006 at 7:26-29, 8:52-55, 7:30-45, 9:41-10:4, Figs. 1-3, 6; Ex.2007 ¶72; Ex.2008 at 32:14-20, 33:3–37:24, 49:12–52:23, 44:21–45:5; Ex.2013 at 23:11-22, 24:2-15, 25:9–26:3, 29:4-8, 31:18-22, 32:7-25, 33:13-17, 35:17–36:11, 38:4-10 (LSR assigns a subport for *receiving* packets); Ex.2013 at 22:8–23:10, 28:12–29:3, 34:22–35:12, 37:9–38:3 (subport is *within* an LSR). Stated differently, RFC 3209’s assignment of an outgoing interface or path is done by an upstream node that sends packets along that assigned path, whereas Raz’s assignment of a subport is done by a downstream node that receives packets using that assigned subport. Ex.2007 ¶72.

Regarding the claimed preparation of a label that identifies the assignment, Petitioner relies on RFC 3209’s alleged teaching that a given node creates a label that identifies the next hop to which that node will *send* packets. Pet. 29-31 (asserting RFC 3209’s label identifies the “next hop”); *see* RFC 3209 at 5, 9-10, 17-18; Ex.2007 ¶73. But Petitioner also relies on Raz’s contradictory teaching that a given LSR creates a label that identifies the subport via which that LSR will *receive* packets. Pet. 31-32 (describing Raz’s LSR C preparing a label identifying the subport used to receive packets “from LSR B”); Ex.1006 at 7:18-45, 8:52-55, 9:41-10:4, Fig. 3; Ex.2007 ¶73; Ex.2008 at 33:3–37:24, 49:12–51:23, 44:21–45:5;

Ex.2013 at 23:23–24:15, 26:13-18, 29:4-8, 31:18-22, 32:7-13, 33:7-17, 35:17–36:22, 38:4-10 (LSR generates/assigns label indicating subport for *receiving* packets).

The relevant teachings of RFC 3209 and Raz are thus incompatible. Ex.2007 ¶¶72-74. Even if Raz were somehow modified to be implemented between LSRs rather than within LSRs, the mechanisms of Raz and RFC 3209 would not have worked together. *Id.* Indeed, as explained in sections II.C and II.E below, Petitioner does not and cannot explain how the assignment and labeling methods of these two references work together.

A POSA therefore would not have been motivated to combine RFC 3209 and Raz. Ex.2007 ¶¶70-75.

C. Petitioner Fails to Establish a Motivation to Modify RFC 3209 with Raz to Arrive at the Claimed Inventions of the '602 Patent

The Petition fails to establish a motivation to modify RFC 3209 based on Raz to meet the independent claims of the '602 patent. Ex.2007 ¶¶76-84.

First, section IX.A of the Petition (“Motivation to Combine RFC 3209 and Raz,” Pet. 9-15) is insufficient because it does not address the specific limitations of the claims and thus cannot establish a motivation to combine RFC 3209 with Raz to meet those claim limitations. *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327-28 (Fed. Cir. 2012) (finding obviousness analysis insufficient because it was not specific to the claim limitations); Ex.2007 ¶77. For example, in

section IX.A of the Petition, there is only one mention of the claimed “single physical tunnel port” despite it being recited in every limitation of claim 1, and there is no discussion of the claimed “preceding node” recited in limitations 1.3 and 1.4. Pet. 9-15.

Second, section IX.A of the Petition is also insufficient because it does not explain how the respective relied-upon teachings of RFC 3209 and Raz would purportedly be combined to work together.⁶ Ex.2007 ¶78. For example, despite the claims reciting a LAG between two MPLS/LAG switches, Petitioner fails to explain how Raz’s subport provisioning mechanism would be modified to implement

⁶ *ActiveVideo Networks*, 694 F.3d at 1327-28 (failed to explain how references would be combined and operate); *PersonalWeb Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993-94 (Fed. Cir. 2017) (failed to explain “*how* the combination of the two references was supposed to work” (emphasis in original)); *Braintree Labs., Inc. v. Novel Labs., Inc.*, 749 F.3d 1349, 1359 (Fed. Cir. 2014) (“failed to prove ... why the ... references would have worked together” (cleaned up)); *Activision Blizzard, Inc. v. Acceleration Bay, LLC*, IPR2016-00747, Paper 50 at 22 (PTAB Sept. 6, 2017) (“fail[ed] to explain sufficiently how the two protocols could have worked together”); *see also In re NuVasive, Inc.*, 842 F.3d 1376, 1381-82 (Fed. Cir. 2016) (“need for specificity” in “findings on motivation”).

subports *between* LSRs.⁷ *Id.* Similarly, despite the claim limitations involving label allocation and distribution, Petitioner fails to explain how the label allocation and distribution protocols of RFC 3209 and Raz would work together.⁸ *Id.*

Petitioner tries to avoid explaining how RFC 3209 and Raz would work together by stating that “[e]ach of the components described by RFC 3209 and Raz would be operating as described in their respective references.” Pet. 14. But this is conclusory and wrong at least because Raz describes operation of its subports *within* an LSR, whereas Petitioner argues a POSA would have implemented Raz’s subports for external communications *between* LSRs. *See* sections II.A, II.B.2 *supra*; Pet. 19, 27-28, 34-35, 50; Ex.2007 ¶79. Petitioner also tries to avoid explaining the combination by stating that “the modification to RFC 3209 would have been minor and required simply adding further specificity to its teachings.” Pet. 14-15. But this fails to meet Petitioner’s burden of explaining how RFC 3209 and Raz would operate together as Petitioner alleges. Ex.2007 ¶79.

⁷ As discussed in section II.B.2 above, a POSA would not and could not have made this modification.

⁸ As discussed in section II.B.3 above, a POSA would not and could not have made this modification.

Third, the alleged improvements asserted in section IX.A of the Petition are incorrect. Ex.2007 ¶¶80-82. For example, Petitioner provides various reasons that Raz’s techniques would purportedly improve RFC 3209’s MPLS network framework. Pet. 11-12. Petitioner’s first reason assumes that Raz’s subports are “an aggregated set of links ([LAG]).” Pet. 11. But as explained in section II.A, Raz’s subports are not a LAG—they are processors (not links) and are not “aggregated” in the same sense as a LAG. Ex.2007 ¶80. Petitioner’s second reason assumes that Raz’s subports are “Ethernet ports.” Pet. 11. Again, as explained in section II.A, Raz’s subports are internal processors, not Ethernet ports. Ex.2007 ¶80. While Petitioner cites Raz’s claim 7 for support (Pet. 11, citing Ex.1006 at 14:42-44), Raz’s claim 7 does not say that Raz’s subports are Ethernet ports; instead, it teaches that a “high speed packet stream,” from aggregating the output of multiple internal subports into a “high speed packet stream” for transmission over an external link, comprises an Ethernet stream. Ex.1006 at 14:5-26, 14:42-44; Ex.2007 ¶80. Petitioner’s third reason relates to labels (Pet. 11), but the references use incompatible labeling methods. *See* sections II.B.3 *supra*, II.E.3 *infra*; Ex.2007 ¶80. Further, a POSA would have understood that Petitioner’s first three reasons (Pet. 11) would not improve but rather restrict RFC 3209’s protocol and make it non-interoperable, which goes against RFC 3209’s teaching. Ex.1010 at 4; Ex.2007 ¶¶80, 58.

Petitioner’s fourth reason relates to reserving bandwidth (Pet. 12), as do several of Petitioner’s other motivation to combine arguments. *See* Pet. 9-13. But RFC 3209 is concerned with reserving bandwidth of links between network devices, whereas Raz teaches reserving bandwidth of internal processors (subports) within network devices. Ex.1010 at 10-11, 13; Ex.1006 at Abstract, Fig. 5, 1:40-2:3, 2:23-25, 6:24-27, 8:1-4, 11:60-12:9, 14:6-8; Pet. 54 (admitting “Raz discusses allocating the bandwidth of subports *within an LSR*”); Ex.2007 ¶81.

Petitioner’s fifth reason relates to rerouting and protection from link failures. Pet. 12. But RFC 3209 already discloses protection and rerouting, thus obviating the need for any such redundant teachings in Raz. Ex.1010 at 3, 7-8, 12-13, 32-34, 42-43, 46; Ex.2007 ¶82. Moreover, Petitioner cites to only Raz’s *definitions* of rerouting and protection switching, not any relevant teaching of such methods in Raz. Pet. 11 (citing Ex.1006 at 5:20-28, 5:33-62); Ex.2007 ¶82.

Fourth, section IX.A of the Petition is not remedied by Petitioner’s analyses of the individual claim limitations in section IX.B of the Petition because, as explained in section II.E below, those analyses likewise fail to establish motivation to modify RFC 3209 based on Raz to meet the specific claim limitations. Ex.2007 ¶83.

In sum, the Petition fails to establish a motivation to modify RFC 3209 with Raz, as Petitioner does not explain specifically why or how a POSA would have modified the particular teachings of RFC 3209 and Raz to work together to meet all limitations of the independent claims. Ex.2007 ¶¶77-84.

D. Petitioner Fails to Establish a Reasonable Expectation of Success

Regardless of whether Petitioner has established a motivation to modify Raz, Petitioner has failed to establish a reasonable expectation of success in doing so. Ex.2007 ¶¶85-89.

Obviousness requires Petitioner to establish that a POSA would have had a reasonable expectation of success in modifying the prior art to arrive at the claimed invention. *Eli Lilly & Co. v. Teva Pharm. Int’l GmbH*, 8 F.4th 1331, 1344 (Fed. Cir. 2021). This requirement is separate and distinct from establishing a motivation to modify the prior art. *Id.*

Petitioner does not argue that a POSA would have had a reasonable expectation of success in modifying RFC 3209 with Raz to meet the claims. Ex.2007 ¶87. Neither the Petition nor Dr. Min’s declaration includes any arguments even mentioning “reasonable expectation of success,” despite Dr. Min’s declaration recognizing the requirement in its “Understanding of the Governing Law” section. Ex.1003 ¶16.

While the Petition includes a single instance of the words “expected success,” that assertion relates to motivation to combine, not the separate requirement of a reasonable expectation of success, as indicated by the case quotation cited for that assertion. Pet. 14-15. Regardless, it fails to establish the requisite reasonable expectation of success because it is conclusory and wrong. Ex.2007 ¶88; *Wasica*, 853 F.3d at 1286 (conclusory assertions insufficient for obviousness). The assertion states that “[e]ach of the components described by RFC 3209 and Raz would be operating as described in their respective references” (Pet. 14-15), but this is inaccurate because Raz describes operation of its subports *within* an LSR, whereas Petitioner argues that Raz’s subports would have been implemented for external communications *between* LSRs in RFC 3209. See sections II.A, II.B.2 *supra*; Pet. 19, 27-28, 34-35, 50; Ex.2007 ¶88. Also, the assertion relies on “the references themselves” but without any explanation or citation. Pet. 14-15. Also, the assertion is wholly unsupported because the cited paragraph of Dr. Min’s declaration (see Pet. 14-15, citing Ex.1003 ¶91) contains no argument regarding reasonable expectation of success. See Ex.2007 ¶88.

Moreover, there is no reasonable expectation of success, including because Raz’s method could not work with inter-router communications and because RFC

3209's and Raz's assignment and labeling processes are incompatible, as explained in sections II.B.2 and II.B.3, respectively. Ex.2007 ¶89.

Ground 1 fails for this reason alone.

E. Independent Claim 1

As explained in sections II.A-D, the combination of RFC 3209 and Raz fails to render obvious the challenged claims. Further, discussed below are additional particular reasons why the combination of RFC 3209 and Raz fails to render obvious claim 1, including because Petitioner fails to establish why or how the relied-upon teachings of Raz and RFC 3209 would have been modified or worked together to meet the claim limitations. *See* footnote 6 in section II.C *supra*; Ex.2007 ¶¶90-132.

1. The Alleged Combination Does Not Render Obvious the “LAG”

Petitioner addresses the claimed “LAG” in Petitioner's analysis of limitation 1.0 (preamble).⁹ Pet. 15-19. Petitioner alleges that the claimed “LAG” is taught by Raz's subparts. Pet. 17-19; *see also* Ex.1003 ¶¶92-99; Ex.2013 at 18:1-14, 18:18-19:5, 11:2-7. As already explained in section II.A, however, Raz's

⁹ Patent Owner does not suggest claim 1's preamble is limiting (it is not) and only addresses Petitioner's analysis there because Petitioner addresses the claimed “LAG” there.

subports do not disclose or render obvious the claimed “LAG.” Petitioner’s limitation 1.0 analysis fails to change that fact.¹⁰ *See* Ex.2007 ¶¶93-99.

Petitioner asserts that “Raz discloses ... a [LAG]” because Raz purportedly discloses “link aggregation to transport ... traffic within an LSR”—i.e., “[p]ackets ... are assigned to one of a plurality of subports for transportation through the LSR and then re-aggregated into the high-speed ... data stream to be forwarded to the next [LSR].” Pet. 17-18; *see also* Pet. 19 (alleging Raz teaches “using aggregation to communicate ... through LAG subports in an LSR”). It does not. Ex.2007 ¶¶95-96.

First, as Petitioner’s assertion recognizes, Raz’s subports are *within* a single LSR and are not a LAG, which is a group of links *between* two LSRs. Ex.1001 at Fig. 1A, 2:1-5, Ex.1007 at 1:28-42; section II.A *supra*; Ex.2007 ¶96. Second, Raz’s subports are not links for packet “transportation” or “communicat[ion]” as Petitioner alleges but rather processors for *internally processing* a high-speed packet stream within an LSR. Ex.1006 at 1:40-59, 2:1-2, 2:5-6, 6:25-29, 7:42-45, 7:59-64, 10:22-23, 12:66-13:5; Ex.2007 ¶96. Third, Petitioner relies on Raz’s teaching of “aggregation,” but this teaching—specifically, that the *outputs* of Raz’s

¹⁰ Petitioner’s analyses for limitations 1.2–1.5 likewise fail to establish that the alleged combination renders obvious a “LAG.”

subports/processors are aggregated into a single packet stream—is different from the meaning of “aggregation” in a LAG, which relates to aggregating links themselves into a single logical link. Ex.1006 at Abstract, 6:36-38, 14:19-22; Ex.1001 at 2:1-17, 3:64-4:1; Ex.1007 at 1:28-32; Ex.2012 at Abstract; Ex.2007 ¶96. In fact, as explained in sections II.A and II.B.2, a POSA would have understood Raz’s aggregating of subport outputs to be multiplexing, which is the opposite of aggregating multiple links to form a LAG, known as inverse multiplexing. Ex.2007 ¶96.

Petitioner also uses bold typeface to emphasize a reference to “LAG” in Raz. Pet. 18-19 (quoting Ex.1006 at 9:9-15). As discussed above in section II.A, however, this quoted portion of Raz does not establish that Raz’s subports constitute a LAG and only mentions “LAG” in relation to certain commercially-available switches, showing that Raz distinguishes between its subports and a LAG.¹¹ Ex.1006 at 9:9-15; Ex.2007 ¶97.

Additionally, Petitioner fails to establish *why* or *how* a POSA would have modified Raz’s subport mechanism, which is within an LSR, to instead be

¹¹ Reference to “LAG” in this quoted portion of Raz is also irrelevant because it is specifically for Raz’s Figure 2 embodiment that does not use MPLS labels, which Petitioner relies on. Ex.1006 at Figs. 1-2, 8:15-9:15; Pet. 9-19; Ex.2007 ¶97 n.7.

implemented as a LAG between LSRs, much less *why* or *how* Raz’s modified mechanism would be combined and work together with the specific teachings of RFC 3209 (*e.g.*, how their two distinct label methods would mesh). Ex.2007 ¶98. The Petition merely asserts, without explanation, that “[t]he concept ... taught by Raz[] also applies to communicating ... between LSRs,” and that it would have been “obvious to apply Raz’s teaching ... to the outgoing LSR interface” and “to use ... Ethernet link aggregation technology in implementing the ... techniques in RFC 3209 and Raz.” Pet. 19. None of Petitioner’s arguments explain *why* or *how* either of Raz or RFC 3209’s methods would be modified in order to “apply Raz’s teaching” of an internal mechanism to an external link in RFC 3209 as Petitioner asserts. Ex.2007 ¶98.

Because the alleged combination fails to render obvious the claimed “LAG,” the combination therefore fails to render obvious limitations 1.1–1.5, each of which recites the “LAG” or the claimed “single physical tunnel port” thereof. Ex.2007 ¶99.

2. The Alleged Combination Does Not Render Obvious Limitation 1.1

Petitioner relies on the combination of RFC 3209 and Raz for “assigning ... a single physical tunnel port of a LAG” as recited in limitation 1.1, but a POSA would not have, and could not have, combined the relied-upon teachings of these two references to meet this limitation. Pet. 20-28; Ex.2007 ¶¶100-11.

The relied-upon teachings in RFC 3209 and Raz are in direct conflict because RFC 3209 teaches assigning an *external* path for *sending* packets on the next hop but Raz teaches assigning *internal* subports used for *receiving* packets from the previous hop. Ex.2007 ¶¶102-07.

Petitioner relies on RFC 3209’s *explicit routing* as teaching that “a given node (i.e., a given LSR, claimed ‘first’ MPLS switch) assigns the ‘next hop,’” which is “the next path segment ... from the given node to an assigned next node.” Pet. 21-22; *see* Ex.2007 ¶103. That is, for the relied-upon explicit routing in RFC 3209, a given node (LSR) assigns an *external* path over which that node will *send* packets. Ex.2007 ¶103. This is demonstrated using the annotated version of Raz’s Figure 3 below. According to RFC 3209’s explicit routing, LSR B (red) would assign LSR C (yellow), and external link 68 thereto, as the next hop that LSR B would use for *externally sending* packets, as shown by the dashed green line.

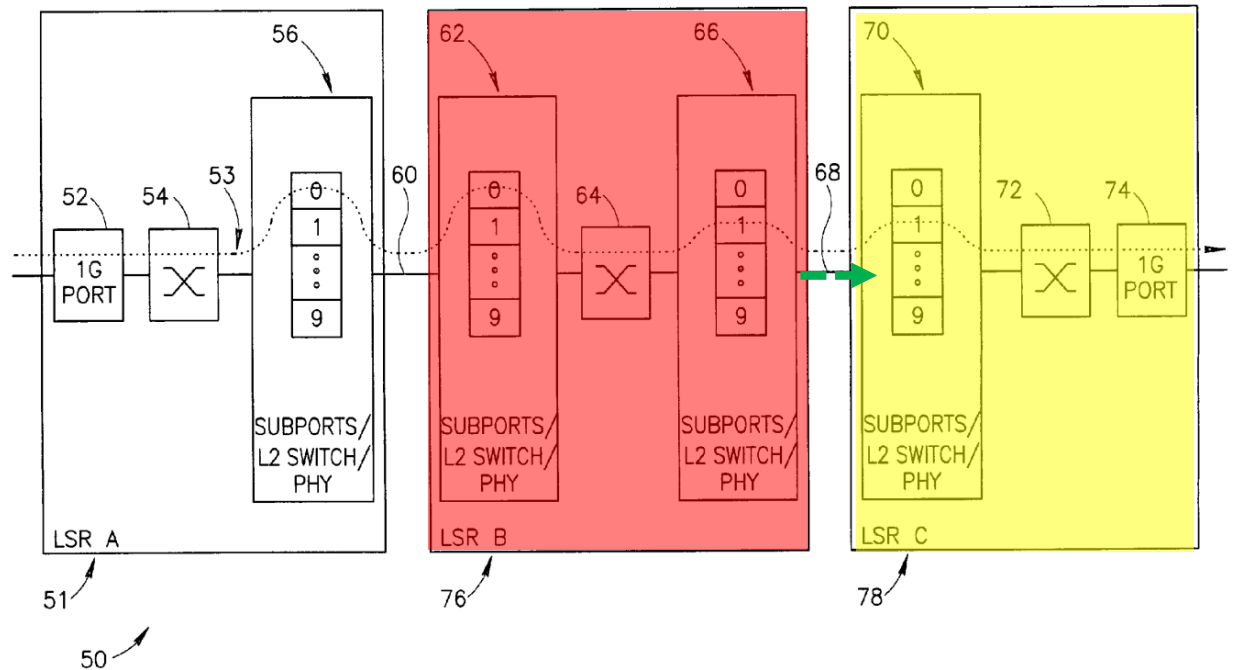


FIG.3

Ex.1006 at Fig. 3 (annotated); Ex.1010 at 28; Ex.2007 ¶103.

In addition to RFC 3209’s explicit routing, Petitioner relies on Raz’s subport provisioning mechanism for teaching that a given LSR (corresponding to the claimed “first” switch) assigns a subport. Pet. 23-24, 27; *see* Ex.2007 ¶104. But Raz’s subport assignment directly contrasts with RFC 3209’s explicit routing because Raz teaches a given LSR assigning *internal* subports used for *receiving* packets by that LSR from the previous hop, not an *external* path for *sending* packets from that LSR to a next hop. Ex.1006 at 7:26-29 (“[T]he downstream (i.e. receiving) node ... determines the subport it wants to receive the LSP on.”), 8:52-55, 7:30-45, 9:41-10:4, Figs. 1-3, 6; Ex.2007 ¶104; Ex.2008 at 32:14-20, 33:3–37:24, 49:12–52:23, 44:21–45:5; Ex.2013 at 23:11-22, 24:2-15, 25:9–26:3, 29:4-8, 31:18-22,

32:7-25, 33:13-17, 35:17–36:11, 38:4-10 (LSR assigns a subport for *receiving* packets); Ex.2013 at 22:8–23:10, 28:12–29:3, 34:22–35:12, 37:9–38:3 (subport is *within* an LSR). As for the next hop, Raz teaches that the subport used for the next hop is not chosen by that given LSR but instead by the next downstream LSR. Ex.1006 at 2:18-20 (“The subports used on both sides of the next hop, however, are independent.”), 6:43-45, 7:17-29, 8:44-55, 9:41-10:4; Ex.2007 ¶104; Ex.2008 at 49:12–52:3, 37:25–40:8; Ex.2013 at 29:4–30:13, 32:15-25, 33:18-23.

This is demonstrated by the annotated version of Raz’s Figure 3 below. Ex.2007 ¶105. It illustrates Raz’s teaching that LSR B (red) assigns subport 0 for *internally* processing data packets *received* by LSR B from LSR A (yellow) (i.e., the previous hop), as shown by the dashed green line. *Id.*; Ex.1006 at 9:51-65, Fig. 3. In contrast to RFC 3209’s explicit routing, LSR B does not use its assigned subport 0 to *externally send* data packets downstream to LSR C (i.e., the next hop), because LSR C independently selects which subport is used for data sent from LSR B to LSR C.

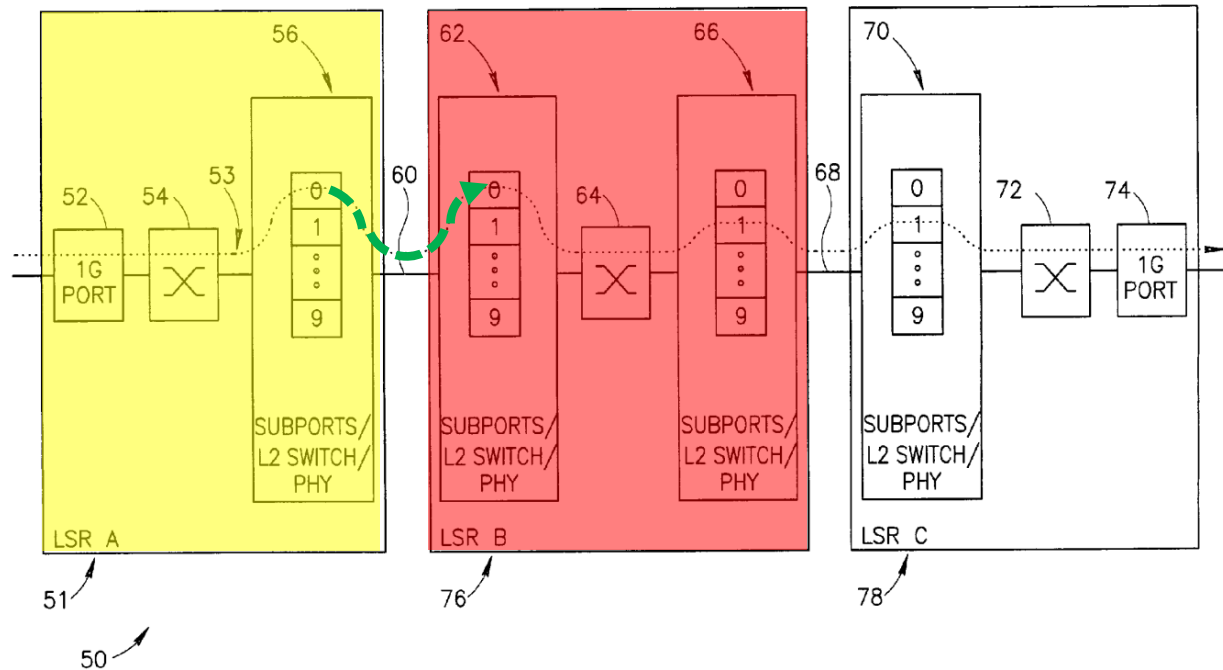


FIG.3

Ex.1006 at Fig. 3 (annotated), 9:29-10:4, 2:18-20, 6:43-45; Ex.2007 ¶105; Ex.2008 at 49:12-53:13; Ex.2013 at 31:18-22, 32:7-25, 33:13-23.

This is also demonstrated by Raz's example in column 7 where Raz explains that when LSR B selects subport 3, subport 3 is used for *internal* processing of packets that LSR B *receives* from LSR A, not for *externally sending* packets to a downstream LSR. Ex.1006 at 7:30-45; Ex.2007 ¶106; Ex.2008 at 34:22-37:24; Ex.2013 at 25:9-26:3, 26:19-27:14, 28:12-29:8.

Therefore, RFC 3209's explicit routing and Raz's subport provisioning work in opposite ways and are incompatible. Ex.2007 ¶¶102-07.

Indeed, Petitioner fails to establish specifically *why* or *how* a POSA would have combined the relied-upon teachings of these references. That is, Petitioner does

not explain why or how Raz’s subport provisioning mechanism would have been modified to apply to a LAG between two LSRs, as opposed to Raz’s subports within LSRs, much less why or how such a modified version of Raz’s subport provisioning mechanism would have been combined and worked together with RFC 3209’s explicit routing process. Ex.2007 ¶108.

To argue that a POSA would have modified Raz’s teachings to apply between two LSRs for limitation 1.1, Petitioner asserts only the following:

While Raz discloses ... assigning a ... subport within an LSR ... the same principles would also have been applied to the physical/outgoing interface of the LSR Raz teaches that a switching fabric within the LSR has an interface comprised of subports, and one of the subports ... is assigned to communicate packets ... through the LSR’s switching fabric The same principles would have applied to forwarding packets between MPLS/LAG switches ... as taught by RFC 3209.

Pet. 27. But this passage fails to explain why or how Raz’s subport provisioning mechanism would have been used *between* LSRs. Ex.2007 ¶109. It concedes that Raz’s method is for “*within* an LSR,” yet instead of explaining specifically how Raz’s method would be modified to apply to external communications *between* two LSRs, Petitioner merely states in conclusory and ambiguous fashion that Raz’s “same principles” would have applied to such external communications. Pet. 27 (emphases added). This passage also fails for additional reasons. Ex.2007 ¶109. First, this passage contains no citations or support. Pet. 27. Second, it refers to “MPLS/LAG switches ... as taught by RFC 3209,” but RFC 3209 does not teach a

LAG or MPLS/*LAG* switches. Ex.2007 ¶109; section II.A *supra*. Third, this passage refers to “switching fabric,” but there is no mention of such “switching fabric” elsewhere in the Petition for Ground 1. Also, this passage asserts that Raz’s “switching fabric within the LSR has an interface comprised of subports,” but Raz’s Figure 1 shows that switching fabric 12 and subports 14 are separate and distinct components. Ex.1006 at Fig. 1; Ex.2007 ¶109.

Petitioner does not and cannot establish that Raz’s subport provisioning would have been modified to apply between LSRs because, as explained in section II.B.2, Raz’s internal operations are not compatible with communications between LSRs, particularly via a LAG, including because Raz teaches that the subports’ outputs are aggregated into a single stream for transmission between LSRs and that the same subport is used within both LSRs on respective sides of the link. Ex.1006 at Abstract, Figs. 1-3, 2:11-16, 2:47-48, 2:63-64, 6:24-27, 6:36-41, 7:20, 8:46-47, 14:19-22; Ex.2007 ¶110.

Petitioner also fails to explain why or how Raz’s subport provisioning (either as described in Raz or as inexplicably modified to apply to a LAG between LSRs) would purportedly be combined and work together with RFC 3209’s explicit routing. Ex.2007 ¶111. RFC 3209’s explicit routing involves using an EXPLICIT_ROUTE object in an RSVP Path message for determining a path along LSRs in a network but not along a particular link between two LSRs, such as one of several links/ports

of a LAG. *Id.*; Ex.1010 1, 5, 8-9, 28-30. While Petitioner recognizes that RFC 3209’s explicit routing would have to be modified to meet the limitation of “assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG,” Petitioner does not explain why or how this would be done. Petitioner addresses motivation to combine the references for limitation 1.1 on Petition pages 27-28, but this passage contains: no citations to RFC 3209 or details regarding its explicit routing process; only one instance of citations to Raz and only for bandwidth-related disclosures, not its method of provisioning subports; and only a single mention of Raz’s “subport.”¹² Pet. 27-28. Notably, Petitioner does not explain how an alleged

¹² To note, this passage quotes non-asserted prior art (Ex.1021, “Rabie”) to argue that a POSA would have understood “that bundled links may connect LSRs together and that an LSP path ... might involve the choice of one of the component links in the bundle.” Pet. 28. First, this highlights that neither of the *asserted* references actually discloses such “bundled links,” or LAG, between two LSRs. *See* section II.A *supra*; Ex.2007 ¶111 n.8. Second, Rabie (which the Petition cites only once) is not asserted prior art, and regardless, Petitioner does not establish motivation for modifying RFC 3209 to include Rabie’s “bundled link,” including because Petitioner’s assertions of what “may” or “might” happen do not establish motivation. *PersonalWeb*, 848 F.3d at 993-94; Ex.2007 ¶111 n.8.

“first MPLS/LAG switch” combines RFC 3209’s explicit routing, which assigns a next hop, with Raz’s subport provisioning, which assigns a subport for a previous hop, because these two processes are incompatible, as explained above. Ex.2007 ¶111.

3. The Alleged Combination Does Not Render Obvious Limitation 1.2

Limitation 1.2 recites that “the first MPLS/LAG switch”—i.e., the same MPLS/LAG switch that assigned the “single physical tunnel port of a LAG” in limitation 1.1—“prepare[s]” a “data packet label” that identifies the “single physical tunnel port of the LAG.” Ex.2007 ¶113; *see* Ex.2013 at 50:19–51:23. Petitioner relies on the combination of RFC 3209 and Raz for this limitation, but a POSA would not, and could not, have combined the relied-upon teachings of these two references to meet this limitation. Pet. 29-32; Ex.2007 ¶¶112-16.

For limitation 1.2, Petitioner asserts that RFC 3209 teaches a given LSR creating a label that identifies the “outgoing interface” for the assigned “next hop,” i.e., the next *downstream* LSR, to which that given LSR will *send* packets. Pet. 29-31; Ex.2007 ¶114. Petitioner also relies on Raz’s teaching that a given LSR creates a label that identifies an assigned subport. Pet. 31-32. But this teaching conflicts with the relied-upon teaching of RFC 3209 because, as the Petition acknowledges, Raz teaches a given LSR creating a label that identifies an assigned subport that the LSR will use to *receive* packets from an *upstream* LSR (previous hop), not *send*

packets to a *downstream* LSR (next hop). Pet. 31 (“LSR C ... dedicates ‘bits ... [to] indicate the subport’ ... through which a packet should be sent from LSR B to LSR C” (citing Ex.1006 at 9:41-58, Figs. 3-4)); Ex.1006 at 7:18-45, 8:52-55, 9:41-10:4; Ex.2007 ¶115; Ex.2008 at 33:3–37:24, 49:12–51:23, 44:21–45:5; Ex.2013 at 23:23–24:15, 26:13-18, 29:4-8, 31:18-22, 32:7-13, 33:7-17, 35:17–36:22, 38:4-10. Therefore, RFC 3209 and Raz teach opposite and incompatible label processes for assigned paths and subports, respectively. Ex.2007 ¶¶114-15.

Indeed, Petitioner fails to establish specifically *why* or *how* a POSA would have combined the relied-upon teachings of these references. Ex.2007 ¶116. In fact, Petitioner’s analysis for limitation 1.2 does not discuss how the respective teachings of RFC 3209 and Raz would purportedly be combined, much less work together to meet limitation 1.2, because the first paragraph of Petitioner’s analysis discusses only RFC 3209 and the second and last paragraph of Petitioner’s analysis discusses only Raz. Pet. 29-31. Petitioner’s analysis thus cannot establish a motivation to combine the two references. Ex.2007 ¶116.

4. The Alleged Combination Does Not Render Obvious Limitation 1.3

As with limitation 1.2, limitation 1.3 recites the “data packet label” that identifies the “single physical tunnel port” of the claimed LAG, and, for this, Petitioner relies on the combination of RFC 3209 and Raz. Pet. 32; Ex.2007 ¶118.

Petitioner’s analysis for limitation 1.3, however, does not discuss motivation to combine and instead relies on Petitioner’s analysis for limitation 1.2. Pet. 32. But as explained above, Petitioner fails to establish that limitation 1.2 is obvious, including because Petitioner does not and cannot explain how the label-related teachings of Raz would purportedly work with those of RFC 3209. Petitioner’s argument for limitation 1.3 fails for the same reasons. Ex.2007 ¶¶117-19.

5. The Alleged Combination Does Not Render Obvious Limitation 1.4

As with limitation 1.2, limitation 1.4 recites the “data packet label” that identifies the “single physical tunnel port” of the claimed LAG. Ex.2007 ¶121. Petitioner addresses this aspect of limitation 1.4 in the first paragraph of its analysis and relies on the combination of RFC 3209 and Raz. Pet. 32-33. Petitioner’s analysis, however, does not discuss motivation to combine the references to meet this limitation and instead relies on Petitioner’s analysis for limitation 1.2. Pet. 32-33. But as explained above, Petitioner fails to establish that limitation 1.2 is obvious, including because Petitioner does not and cannot explain specifically how the label-related teachings of Raz would purportedly work with those of RFC 3209. Petitioner’s argument for limitation 1.4 fails for the same reasons. Ex.2007 ¶¶120-21. While Petitioner asserts that RFC 3209’s “label value” identifies the *next hop* to which the given LSR will *send* the data packet (*see* Pet. 30-31, 32-33), Raz’s label identifies a subport for the *previous hop* from which the given LSR will *receive* the

data packet, not the next hop. *See* section II.E.3 *supra*; Ex.2007 ¶121. Petitioner cannot reconcile this incompatibility and instead ignores it.

Limitation 1.4 further recites that the “data packet label” identifying the “single physical tunnel port” is contained in a data packet “receiv[ed] from the preceding node, by said first MPLS/LAG switch.” Ex.2007 ¶122. For this, the second paragraph of Petitioner’s analysis asserts that “Raz’s technique is similar [to RFC 3209] insofar as the [given] LSR receives a packet from a previous node” with a “label indicating the ... subport over which the packet should be communicated.” Pet. 33. But this assertion oversimplifies the references and fails to explain how their specific label-related teachings would work together. Ex.2007 ¶122. For example, Raz does not disclose that a given LSR receives from a preceding LSR a data packet with a label indicating simply the “subport over which the packet should be communicated,” as Petitioner asserts (Pet. 33), but rather it specifically indicates the subport used for packets that the given LSR *receives*, not *sends*. Ex.1006 at 7:18-45, 8:52-55, 9:41-10:4; Ex.2007 ¶121; sections II.E.3, II.B.3 *supra*. As explained in section II.E.3 above, the relied-upon label-related teachings of the references are incompatible based on the details of those teachings. Ex.2007 ¶121. This incompatibility is evident from Petitioner’s own analysis for limitation 1.4, which asserts that when a given node (corresponding to the claimed “first MPLS/LAG switch”) receives a label from a preceding node, in RFC 3209 that label identifies

the *next hop* (Pet. 33: receiving node uses label for “Next Hop Label Forwarding Entry”), but in Raz that label identifies a subport for the *previous hop* (Pet. 33: LSR B receives label indicating subport used for transmitting from LSR A to LSR B).

6. The Alleged Combination Does Not Render Obvious Limitation 1.5

The asserted combination of RFC 3209 and Raz does not render obvious limitation 1.5. Ex.2007 ¶¶123-32. Limitation 1.5 recites sending the data packet *between* the first and second MPLS/LAG switches *via* the *single physical tunnel port of the LAG*. Ex.2007 ¶124; Ex.2008 at 94:22-24, 95:2-8. Petitioner relies upon Raz’s subport as the claimed “single physical tunnel port” of a LAG (Pet. 34-36), but as explained in sections II.A and II.B.2, Raz’s subports are *within* the LSR, Raz’s subports would not and could not have been implemented as a LAG *between* two LSRs, and Raz teaches transmitting packets between LSRs via a single high-speed link, not a LAG. Ex.2007 ¶124. Therefore, Raz’s subports cannot be the conduit “via” which data is sent “from said first MPLS/LAG switch to a second MPLS/LAG switch,” as recited in limitation 1.5. *Id.*

Even if a POSA were motivated and capable of applying Raz’s teachings to communications between LSRs, the asserted combination would nonetheless fail to meet limitation 1.5. Ex.2007 ¶¶125-31.

Limitation 1.5 further requires that the “first MPLS/LAG switch” must “**send[]**” the data packet via the “single physical tunnel port” that is (i) assigned by

that first MPLS/LAG switch, per limitation 1.1, and (ii) identified in the label generated by that first MPLS/LAG switch, per limitation 1.2. Ex.2007 ¶126; Ex.2013 at 50:19–53:1. For the alleged combination of RFC 3209 and Raz, Petitioner asserts that **Raz’s subport** constitutes the claimed “single physical tunnel port” via which the packet is sent and relies on **Raz’s teachings** regarding both (i) assigning it and (ii) generating a label identifying it. Pet. 34-35 (alleging the packet is sent “‘via’ ... the assigned ... subport which was selected according to the teachings of Raz ... because it is the ... subport which Raz discloses is indicated in the data packet label”); *see also* Pet. 23-28, 31-32 (relying on Raz for limitations 1.1-1.2). In other words, Petitioner asserts that a given LSR in RFC 3209 (i.e., alleged “first MPLS/LAG switch”) purportedly assigns a subport and generates a corresponding label according to Raz and then **sends** the claimed data packet via that subport. Ex.2007 ¶126.

Raz, however, teaches that the LSR that assigns a subport and generates the label (i.e., the alleged “first MPLS/LAG switch”) does not then **send** packets via that assigned subport to a downstream LSR but instead uses it to **receive** packets. Ex.1006 at 7:26-29 (“[T]he downstream (i.e. receiving) node ... determines the subport it wants to receive the LSP on.”), 8:52-55, 7:30-45, 9:41-10:4; Ex.2007 ¶127; Ex.2008 at 33:3–36:7, 49:12–52:3, 44:21–45:5; Ex.2013 at 23:11–24:15, 25:9–26:3, 26:13-18, 29:4-8, 31:18-22, 32:7–33:17, 35:17–36:22, 38:4-10.

While Petitioner attempts to say that a given LSR in RFC 3209 would assign a subport according to Raz and use that assigned subport for the “next hop” (Pet. 34-35), Raz instead teaches that the subport for the “next hop” is not assigned by that given LSR but rather by the next downstream LSR. Ex.1006 at 2:18-20 (“The subports used on both sides of the next hop, however, are independent.”), 6:43-45, 7:17-29, 8:44-55, 9:41-10:4; Ex.2007 ¶127; Ex.2008 at 49:22–52:3, 37:25–40:8; Ex.2013 at 29:4–30:13, 32:15-25, 33:18-23.

This is demonstrated by the annotated version of Raz’s Figure 3 below, which illustrates Raz’s teaching that LSR B (red) selects subport 0 and then *receives* a packet using that assigned subport 0 (dashed purple line), but LSR B does not *send* the packet downstream to LSR C via subport 0, as LSR C independently selects which subport is used for sending packets from LSR B to LSR C.

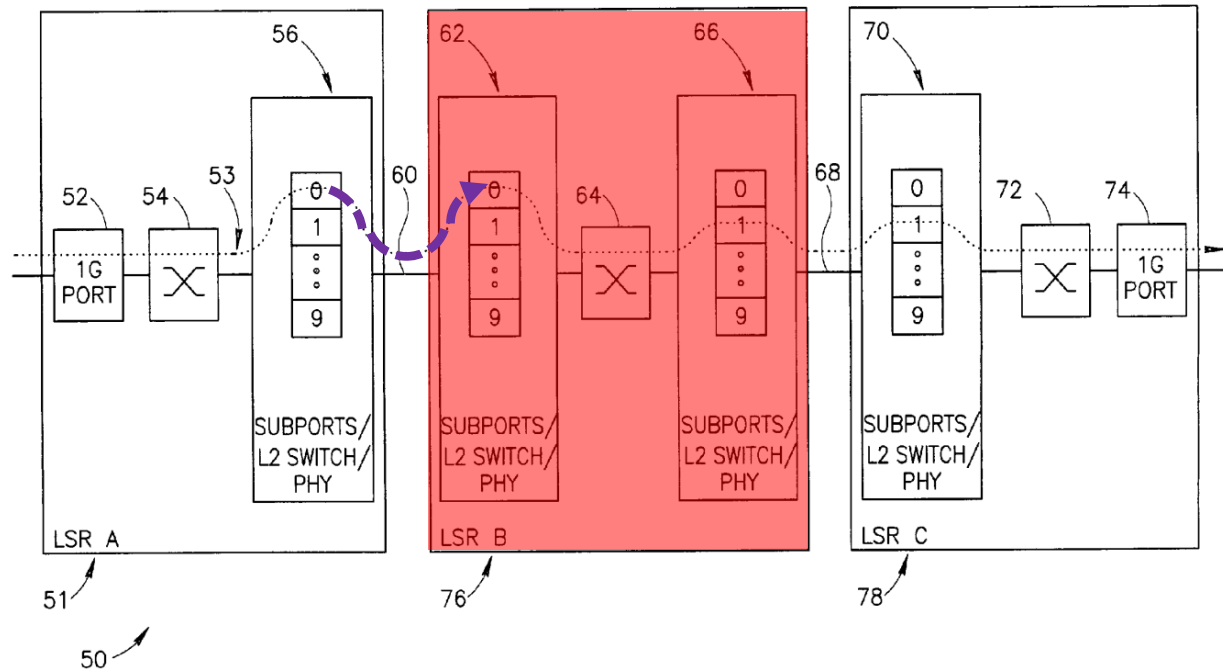


FIG.3

Ex.1006 at Fig. 3 (annotated), 9:29-10:4; Ex.2007 ¶128; Ex.2008 at 49:12–53:13; Ex.2013 at 31:18-22, 32:7-25, 33:13-23.

This is also demonstrated by Raz’s example in column 7, where Raz explains that when LSR B selects subport 3 and generates a label indicating subport 3, then subport 3 is used for packets that LSR B *receives* from LSR A. Ex.1006 at 7:30-45; Ex.2007 ¶129; Ex.2008 at 34:22–37:24; Ex.2013 at 25:9–26:3, 26:13-18, 29:4-8. LSR B does not use the assigned subport 3 to *send* packets to a downstream node. Ex.2007 ¶129.

Therefore, even if Raz’s subport mechanism was somehow implemented between LSRs in RFC 3209 such that a first LSR (i.e., alleged “first MPLS/LAG switch”) uses Raz’s teachings to assign a subport (i.e., alleged “single physical

tunnel port”) and prepare a “data packet label” identifying that assigned subport, as Petitioner asserts for limitations 1.1-1.2, then that first LSR would use that assigned subport for *receiving* a data packet, not *sending* it as recited in limitation 1.5. Ex.2007 ¶¶127-30.

The last paragraph of Petitioner’s limitation 1.5 analysis suggests that Raz teaches a first LSR sending a packet to a second LSR via the subport identified in the label created by the first LSR. Pet. 36. But this mischaracterizes Raz and is wrong, as shown by the portions of Raz Petitioner cites. Pet. 36 (citing Ex.1006 at 7:17-29, 9:29-58, Figs. 3-4, 14:23-26); Ex.2007 ¶131. First, Petitioner cites Raz at 7:17-29, but this teaches that the “downstream (i.e. receiving) node” prepares a label identifying a subport for receiving packets, not sending them. Ex.2007 ¶131; Ex.2013 at 23:11–24:15. Next, Petitioner cites Raz at 9:29-58, but this similarly teaches that LSRs B and C each prepare a label indicating a subport for receiving packets, not sending. Ex.2007 ¶131; Ex.2013 at 31:18-22, 32:7-25, 33:13-17. Lastly, Petitioner quotes Raz at 14:23-26, which is a clause of Raz’s claim 1 that discloses “forwarding inbound packets ... received ... by said downstream node to a subport in accordance with the label.” But, in context, this refers to the downstream/receiving LSR “forwarding” the received packets to a subport *within* the downstream/receiving LSR for processing, not forwarding the packets *via* the subport to some *subsequent* LSR. Ex.1006 at 14:6-26; Ex.2007 ¶131; Ex.2008 at

46:14–47:25; Ex.2013 at 37:9–38:3. For example, Raz similarly uses the term “forward” in regard to Raz’s Figure 3 above, saying that “[a]t LSR B, the layer 2 switch **forwards** the packet to subport 0,” but this means LSR B sends the packet to subport 0 *within* LSR B, not *via* subport 0 to LSR C. Ex.1006 at Fig. 3, 9:59-10:4; Ex.2007 ¶131; Ex.2008 at 52:13-23; Ex.2013 at 34:22–35:12.

Moreover, Petitioner’s analysis for limitation 1.5 again fails to explain *why* or *how* the respective teachings of RFC 3209 and Raz would have been combined and worked together. Ex.2007 ¶132. For example, despite relying on Raz’s subport for the claimed “single physical tunnel port” and on Raz’s teachings regarding subport assignment and label preparation by the “first MPLS/LAG switch,” Petitioner does not explain why or how Raz’s methods would be modified such that the “first MPLS/LAG switch” **sends** rather than **receives** a packet via the assigned subport, much less work together with the specific processes of RFC 3209. *Id.* Indeed, there is no mention of “modify” in Petitioner’s limitation 1.5 analysis, and the only citations to Raz occur in the last paragraph of Petitioner’s analysis, which in turn does not discuss or cite RFC 3209. Pet. 34-36.

F. Independent Claim 15

As explained in sections II.A-D, the combination of RFC 3209 and Raz fails to render obvious the challenged claims. Ex.2007 ¶135.

Additionally, the combination of RFC 3209 and Raz fails to render obvious claim 15 for the same reasons discussed in section II.E regarding claim 1 because Petitioner expressly relies on its analysis of limitations 1.0–1.5 for purposes of claim 15. Pet. 49-52; Ex.2007 ¶¶136, 134.

Further, discussed below are additional reasons why the combination of RFC 3209 and Raz fails to render obvious claim 15. Ex.2007 ¶¶133-34, 137-43.

1. Limitation 15.1: “processor”

Limitation 15.1 recites a “processor, which is configured to” perform limitations 15.2–15.4. Petitioner’s analysis of limitation 15.1 is deficient because it consists of a single quote from Raz, with no discussion of performing limitations 15.2–15.4 and no discussion or citation of primary reference RFC 3209, much less any motivation to combine Raz’s teaching with RFC 3209. Pet. 50-51. Petitioner’s expert declaration is similarly lacking. *See* Ex.1003 ¶¶184-186. And Petitioner’s analyses of limitations 15.2–15.4 contain no discussion. Pet. 51. Petitioner has thus failed to meet its burden for limitation 15.1. *See* Ex.2007 ¶138.

2. Limitation 15.5: “mapper”

Limitation 15.5 recites a “mapper, which is configured to” perform limitations 15.6–15.8. Petitioner fails to establish that the combination of RFC 3209 and Raz discloses or renders obvious the claimed “mapper.” Ex.2007 ¶¶139-43.

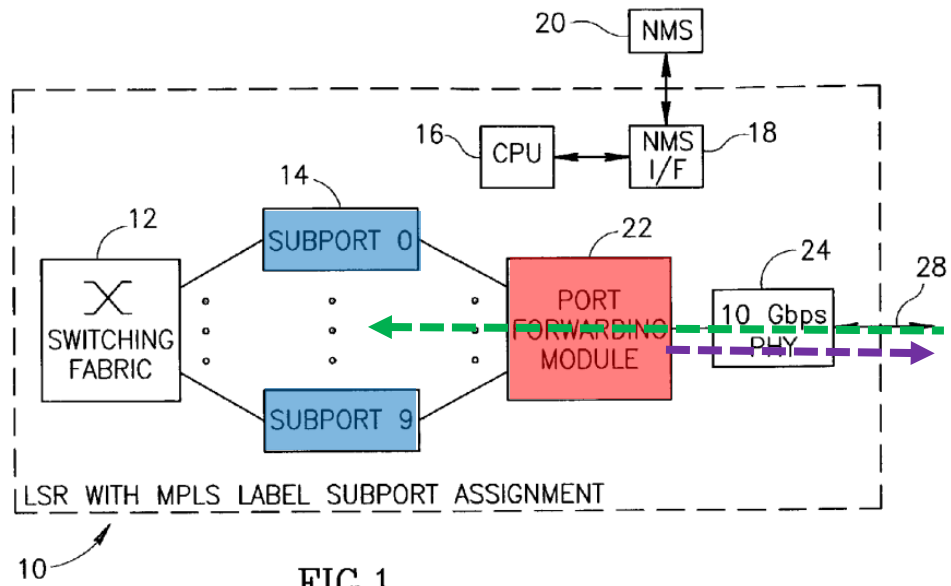
Petitioner merely alleges that some vague mystery component within RFC 3209's LSR constitutes the "mapper." Pet. 51-52. Petitioner does not specifically and sufficiently identify a "mapper." *Kranos Corp. v. Riddell, Inc.*, IPR2016-01649, Paper 25 at 29, 33, 36, 39, 42-43 (PTAB Feb. 7, 2018) (finding petitioner failed to identify elements in the prior art); Ex.2007 ¶140.

Moreover, Petitioner's reasoning is that RFC 3209's LSR purportedly "performs the functions of the claimed 'mapper'" (i.e., limitations 15.6–15.8) and therefore must comprise some single mystery component that performs these functions. Pet. 51. But even assuming RFC 3209's LSR performs limitations 15.6–15.8, Petitioner's reasoning fails because the LSR could just as well have multiple separate components each configured to perform one of those limitations, not a single "mapper" configured to perform all of limitations 15.6–15.8. Ex.2007 ¶141.

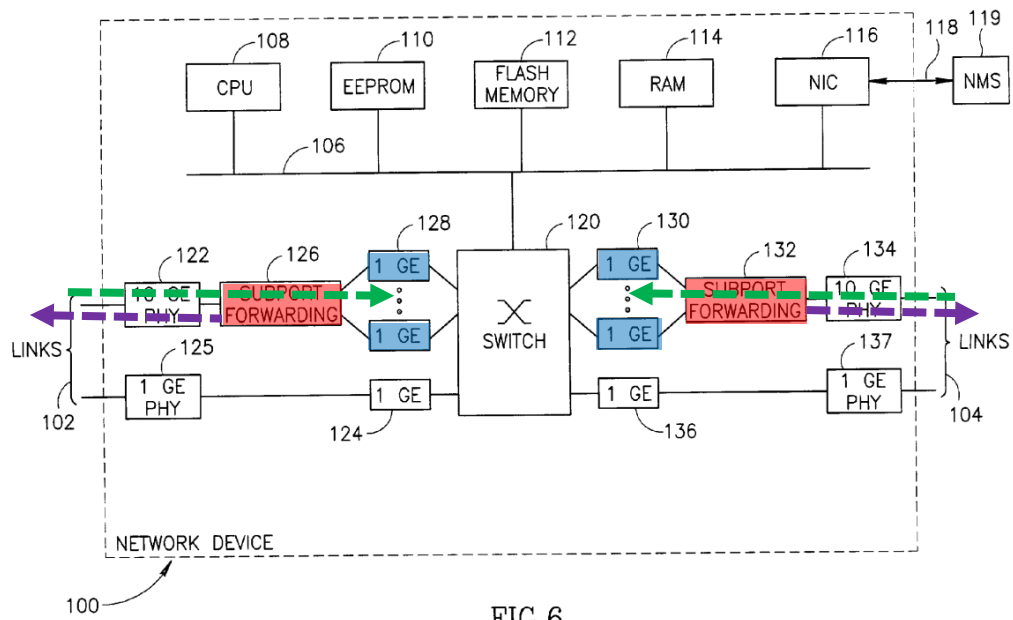
Petitioner's expert declaration includes an additional alternative argument—i.e., that Raz's "forwarding module" corresponds to the claimed "mapper." Ex.1003 ¶197. This argument fails, however, because it is not included in the Petition. Pet. 51-52; *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 at 9-10 (PTAB Aug. 29, 2014) (informative). Even if considered, this argument fails because Petitioner's expert declaration does not explain how Raz's forwarding module is allegedly configured to perform limitations 15.6–15.8 or

would allegedly be combined with primary reference RFC 3209. Ex.1003 ¶¶196-208; Ex.2007 ¶142.

In fact, Raz’s forwarding module does not meet limitations 15.5–15.8 and cannot constitute the claimed “mapper” because, as demonstrated by the annotated versions of Raz’s Figures 1 and 6 below: (i) if the forwarding module (red) “receive[s]” packets per limitation 15.6 (green dashed line), then it directs the packets to subports (blue) within the same LSR and does not send the packets to a different LSR per limitation 15.8; and (ii) if the forwarding module (red) handles packets being sent to a different LSR per limitation 15.8 (purple dashed line), then it does not send the packets via a subport (blue) as Petitioner alleges for limitation 15.8. Ex.1006 at Fig. 1, Fig. 6, 3:28-32, 7:39-45, 7:49-52, 12:66-12:1, 13:22-24, 16:43-53; Pet. 52, 34-36; Ex.2007 ¶143; Ex.2008 at 54:5–56:25, 32:3-13, 57:1–58:12; Ex.2013 at 22:8–23:10.



Ex.1006 at Fig. 1 (annotated).



Ex.1006 at Fig. 6 (annotated).

G. Independent Claim 26

As explained in sections II.A-D, the combination of RFC 3209 and Raz fails to render obvious the challenged claims. Ex.2007 ¶146.

Additionally, the combination of RFC 3209 and Raz fails to render obvious claim 26 for the same reasons discussed in section II.E regarding claim 1 because Petitioner expressly relies on its analysis of limitations 1.0–1.5 for purposes of claim 26. Pet. 52-53; Ex.2007 ¶¶147, 144-45.

III. Ground 2: The Combination of RFC 3209, Raz, and Ferguson Does Not Render Obvious Claims 1-26

Petitioner has failed to show that claims 1-26 of the '602 patent are obvious over RFC 3209, Raz, and Ferguson. A POSA would not have modified RFC 3209 and Raz based on Ferguson as Petitioner asserts, and regardless, the alleged combination fails to render obvious the claims. Ex.2007 ¶¶148-86.

Petitioner's Ground 2 purports to "incorporate[] by reference" its Ground 1 obviousness analysis. Pet. 53. This Response similarly incorporates by reference the Ground 1 analysis from section II above. *See* Ex.2007 ¶149.

A. Petitioner's Ground 2 Relates to Raz and Ferguson, Not RFC 3209

Ground 2 includes no discussion regarding the specific teachings of primary reference RFC 3209 or any modifications thereof to meet the claims, and Ground 2 fails for this reason alone. Ex.2007 ¶150. Indeed, the Petition's entire Ground 2

section includes only a single citation to RFC 3209. Pet. 53-60 (citing Ex.1010 at 54).¹³

Ground 2 is exclusively about modifying secondary reference Raz based on tertiary reference Ferguson—specifically modifying Raz’s mechanism for within an LSR to apply between LSRs. Pet. 56-60; Ex.2007 ¶151. This is because Petitioner’s Ground 2 analysis is copied almost word-for-word from the petition in IPR2023-00447, where Raz is the primary reference and the asserted combination is just Raz and Ferguson, without RFC 3209.¹⁴ See Ex.2001 (“’447 petition,” i.e., *Cisco Systems, Inc. v. Corrigent Corporation*, IPR2023-00447, Paper 1 (PTAB Jan. 10, 2023)) at 1, 52-59. Indeed, in this Petition, Ground 2 sections X.A and X.B consist

¹³ Moreover, Petitioner’s expert declaration cites RFC 3209 only three times for Ground 2 and only for the simple assertions that it involves MPLS and bandwidth availability. Ex.1003 ¶¶243-45.

¹⁴ Similarly, for Ground 2, Petitioner’s expert declaration by Dr. Min (Ex.1003) contains statements and annotated figures copied from the declaration of Dr. Bhattacharjee in IPR2023-00447 (Ex.1028), despite Dr. Min having not seen or reviewed Dr. Bhattacharjee’s declaration before submitting his own declaration. See Ex.2013 at 61:11-18, 53:8–54:13; e.g., Ex.2013 at 59:15–60:12.

entirely of paragraphs from the '447 petition, including the same annotated figures, with only minor edits (*e.g.*, to add mentions of RFC 3209 and adjust citations). *Compare* Pet. 53-56 with '447 petition at 56-59; *compare* Pet. 56-60 with '447 petition at 52-56.¹⁵

B. A POSA Would Not Have Modified RFC 3209 and Raz Based on Ferguson to Arrive at the Claimed Inventions of the '602 Patent

As explained in section III.A, Petitioner argues in Ground 2 that Ferguson would be used to modify Raz, not RFC 3209. Pet. 56-60. Specifically, Petitioner argues that based on Ferguson, Raz's teachings regarding subports *within* an LSR could have been implemented *between* two MPLS/LAG switches, as recited in the challenged claims. Pet. 56-60; *see* Ex.2007 ¶152. A POSA, however, would not have been motivated to make this modification to Raz based on Ferguson. Ex.2007 ¶¶152-61.

First, section II.B.2 already explains why a POSA would not and could not have modified Raz to apply to communications between two network devices such as MPLS/LAG switches. Ex.2007 ¶153.

¹⁵ The fact that Petitioner used the '447 petition as a template is further evidenced by heading XI in the Petition's Table of Contents, which is left over from the '447 petition. *Compare* Pet. ii with '447 petition at ii.

Second, a POSA would not have been motivated to modify Raz's teachings regarding subports *within* an LSR to apply to communications *between* LSRs in view of Ferguson. Ex.2007 ¶¶154-61. Ferguson describes techniques for distributing packets of a single LSP across multiple interconnects of an aggregated link (*e.g.*, based on payloads, and for purposes of load balancing). Ex.1007 at Abstract, Figs. 1-2C, 1:57-63, 2:4-6, 2:35-38, 2:40-47, 2:54-57, 3:16-18, 3:36-4:19, 4:45-5:24, 6:15-31, claim 1; Ex.2007 ¶155. Ferguson further discloses that its external distribution techniques may be applied to distribute packets of a common LSP across multiple paths within a network device, such as a router. Ex.1007 at 1:63-66, 5:61-6:9; Ex.2013 at 48:25–49:11; Ex.2007 ¶155.

But, as explained in section II.B.2, a POSA would have understood that Raz is solely directed to a provisioning mechanism for *inside* a network device and teaches away from applying its subport-related teachings to an external link between two LSRs. Ex.1006 at Abstract, 1:40-62, 6:24-27, 6:51-54; Ex.2007 ¶156; *Panduit Corp.*, 810 F.2d at 1568.

Also, while Ferguson teaches that its own techniques for communications between routers may be applied within a router (Ex.1007 at 5:61-6:9; *see also* Ex.2013 at 48:25–49:11), a POSA would not have understood, based on Ferguson, that the opposite is true for any teachings outside of Ferguson, such as the teachings of Raz. Ex.2007 ¶157. That is, despite Ferguson teaching that Ferguson's own

techniques may apply within a router, a POSA would not have been motivated to take Raz's provisioning mechanism for within an LSR and attempt to apply it to communications between LSRs. *Id.*

Additionally, a POSA would not have been motivated to modify Raz based on Ferguson because Ferguson and Raz address different problems. Ex.2007 ¶158. As explained in sections II.B.1-2, Raz is concerned with processing capacity within an LSR and addresses the problem of how an LSR can handle a high-speed link using multiple slow-speed processors. *Id.*; Ex.1006 at Abstract, 1:40-2:3, 6:24-27, 14:6-8, 15:14-17, 16:27-29. Ferguson, however, is directed to distributing packets across multiple paths or interconnects, for example, to achieve load balancing and decreased packet latency. Ex.2007 ¶158; Ex.1007 at Abstract, 1:57-63, 2:54-57, 4:45-60. Unlike Raz, Ferguson assumes that routers have sufficient processing capacity to handle the data communications that Ferguson describes distributing. Ex.2007 ¶158. In fact, Ferguson references network devices, such as routers, having "high-speed" components, not low-speed processors like Raz's subports. *E.g.*, Ex.1007 at 2:47-53 ("internal high-speed switching components"), 6:2-6 ("internal, high-speed switch fabrics"). A POSA would thus not have looked to Ferguson when considering Raz. Ex.2007 ¶158.

Even assuming that Raz and Ferguson address some common problem, these two references use fundamentally different methods. Ex.2007 ¶¶159-60. Ferguson

teaches distributing packets of a single common LSP across multiple paths or interconnects of an aggregated link. Ex.1007 at Abstract, Figs. 2A-2C, 1:57-66, 2:4-6, 2:27-34, 2:40-43, claim 1; Ex.2007 ¶159; Ex.2013 at 39:14–40:12. In contrast, Raz’s provisioning mechanism teaches assigning all packets of a given LSP to the same particular subport in a group of subports, and different LSPs can be provisioned for different subports in the group. Ex.1006 at 7:17-19, 7:26-45, 8:56-58, 9:41-10:4, 11:36-38; Ex.2007 ¶159; Ex.2013 at 24:17–25:8, 33:25–34:13. This distinction is shown by the annotated versions of Ferguson’s Figure 2A and Raz’s Figure 1 below, which demonstrate how Ferguson distributes packets of a common LSP (dashed green lines) among multiple paths of an aggregate interface, whereas Raz sends all packets of a given LSP (dashed green line) to a single subport (subport 0) of a group of subports and sends all packets of a different LSP (dashed red line) to another single subport (subport 9). Ex.2007 ¶159. Petitioner fails to address this fundamental difference between Ferguson and Raz. Based on this difference, and others, a POSA would not have modified Raz’s provisioning mechanism based on Ferguson. *Id.*

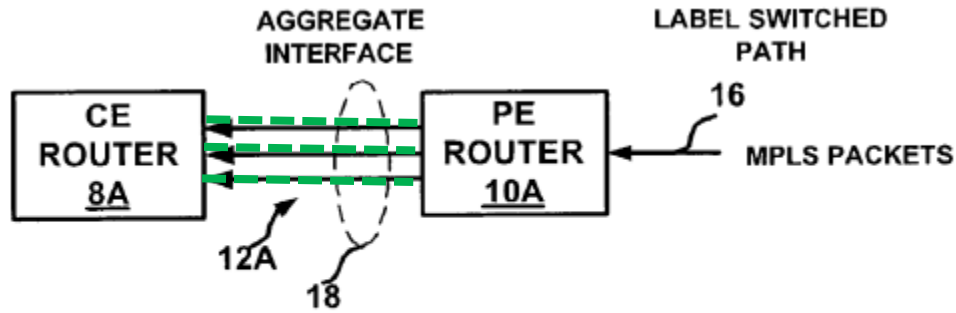


FIG. 2A

Ex.1007 at Fig. 2A (annotated).

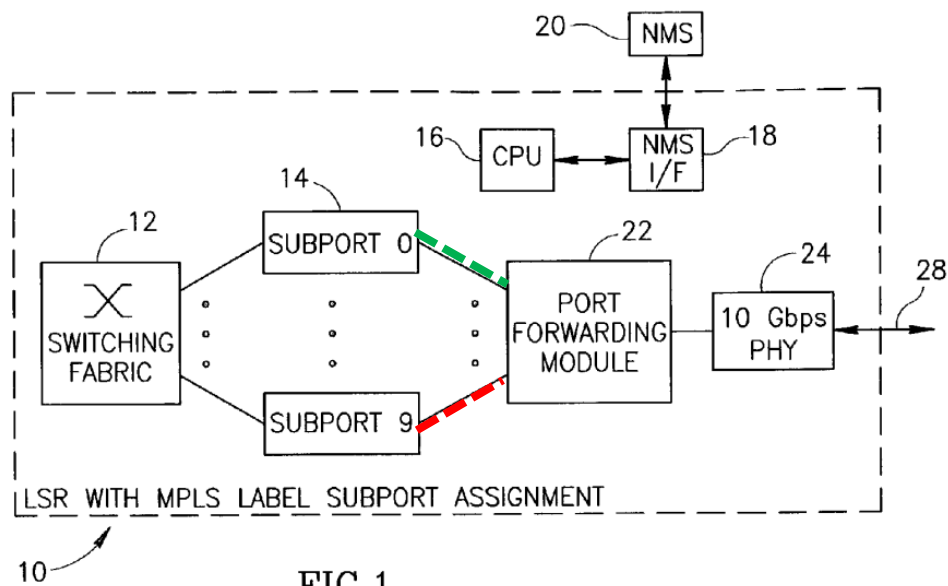


FIG.1

Ex.1006 at Fig. 1 (annotated).

Additionally, Ferguson and Raz teach different methods regarding packet labels, which Petitioner does not address. Ex.2007 ¶160. As explained for Ground 1, Raz emphasizes that its subport assignment and label generation comes from downstream, teaching that a receiving LSR selects a subport, generates a label indicating that subport, and sends that label to an upstream device. *Id.*; Ex.1006 at

7:26-38, 8:52-55, 9:41-58; Ex.2008 at 33:3–34:21, 35:5–36:7, 49:12–50:1, 51:1–52:3, 44:21–45:5; Ex.2013 at 23:11–24:1, 25:9–26:3, 26:13-18, 31:18-22, 33:7-17, 35:17–36:22. Ferguson, however, does not include any such teachings. Ex.2007 ¶160; *see, e.g.*, Ex.2008 at 78:23–81:3. Ferguson instead teaches that a given router transmits a packet based on the existing label(s) of that packet or selects and pre-pends its own label to the packet. *See* Ex.1007 at 2:4-26, 3:53-4:8, 8:29-57 (describing how CE router 8A “selects an appropriate MPLS label ... and pre-pends the label to the packet to form an MPLS packet,” and “[o]ther [downstream] devices, such as PE routers 10, may make use of the labels to distribute the MPLS packets”); Ex.2007 ¶160; Ex.2008 at 75:6-9, 76:16-20, 77:18–78:4. This demonstrates a fundamental difference between Raz and Ferguson and why a POSA would not have modified Raz’s provisioning mechanism based on Ferguson. Ex.2007 ¶160.

Moreover, as explained in section II.B.2, a POSA would not have applied Raz’s subport-related teachings to communications between two MPLS/LAG switches because such modification would have rendered Raz inoperable for its intended purpose, regardless of whether such modification was based on Ferguson. Ex.2007 ¶161.

C. Petitioner Fails to Establish a Motivation to Modify RFC 3209 and Raz with Ferguson to Arrive at the Claimed Inventions of the '602 Patent

The Petition fails to establish a motivation to modify RFC 3209 and Raz based on Ferguson to meet the claims of the '602 patent. A purported motivation must be tied to the claim limitations and must explain how the references purportedly work together to meet the limitations. *ActiveVideo Networks*, 694 F.3d at 1327-28; *see* footnote 6 in section II.B.C *supra*. As explained in section III.A, Petitioner argues in Ground 2 that Raz would have been modified based on Ferguson. Pet. 56-60. But Petitioner fails to explain specifically *why* or *how* Raz would be modified based on Ferguson, let alone how such a modified version of Raz would be combined with RFC 3209 to meet the claim limitations. Ex.2007 ¶¶162-79.

Petitioner's analysis for Ground 2 is not tied to the claim limitations to begin with, as it does not even perform a limitation-by-limitation analysis. Pet. 53-60; Ex.2007 ¶163. Petitioner's Ground 2 analysis states that "[t]he analysis ... in Ground 1 [is] incorporated by reference," but Ground 1 does not include Ferguson. Pet. 53.

Petitioner's analysis also fails to explain why or how Raz would be modified based on Ferguson. The Petition does not mention "modify" and does not explain precisely *how* a POSA would modify Raz's mechanism for subports *within* an LSR to apply to communications *between* two MPLS/LAG switches. Pet. 53-60;

Ex.2007 ¶164. Instead, Petitioner’s Ground 2 merely argues that a POSA would have taken Raz’s techniques for using subports within a router and applied those techniques to communications between routers, without discussing how to do this. Pet. 53-60; Ex.2007 ¶164.

Below is an analysis of the various obviousness assertions in the Petition.

Petitioner asserts that Raz and Ferguson “solv[e] the same problem” and disclose “the same subject matter,” but Petitioner provides no explanation of this. Pet. 54; Ex.2007 ¶166. In fact, as explained in section III.B, Raz and Ferguson address different problems and use different contrasting solutions. Ex.2007 ¶¶166, 155-56, 158-60. For example, while Petitioner asserts that Ferguson’s disclosure of “a LAG to communicate ... between routers” is “the same subject matter as Raz,” this is inaccurate because, as Petitioner itself acknowledges, Raz’s subport mechanism is for “within” a router, not between routers. Pet. 54, 56; Ex.2007 ¶166.

Petitioner next asserts that both Raz and Ferguson “are directed to ... ensuring enough bandwidth is available to communicate high-speed packet streams through an MPLS network.” Pet. 54-55. This mischaracterizes Raz, however, which is not concerned with bandwidth for communicating high-speed streams through a network but instead with processing capacity/bandwidth *within* a network device. Ex.1006 at Abstract, 1:40-2:3, 6:24-27, 14:6-8, 15:14-17, 16:27-29; Ex.2007 ¶167; section II.B.1-2 *supra*. Indeed, to the extent Raz discloses bandwidth allocation, it

is with respect to allocating bandwidth of subports, which are *within* an LSR. Ex.1006 at Abstract, Fig. 5, 2:23-25, 8:1-4, 11:60-12:9; Ex.2007 ¶167. Petitioner even admits that Raz concerns “allocating the bandwidth of subports *within an LSR*.” Pet. 54 (emphasis added).

Petitioner next asserts that “[a] POSITA would have understood from ... Ferguson that techniques ... to communicate data packets between routers ... are also applicable to the use of subports ... within the routers ..., and vice versa,” such that “a POSITA would have understood that the techniques disclosed in Raz ... would also have been applicable ... between routers.” Pet. 55-56. First, however, Ferguson does not teach the “vice versa”—i.e., that a technique described for within a router is also applicable between routers. Ex.2007 ¶168. Indeed, Petitioner cites no support for this “vice versa.” Instead, Petitioner cites only Ex.1007 at 5:61-6:6 (and Ex.1003 ¶246, which also cites only Ex.1007 at 5:61-6:6 for this “vice versa”), and that disclosure shows that Ferguson teaches the opposite, as Ferguson says its techniques “described in reference to” an external link between routers “may be ... applied” to within a router. *See* Ex.2007 ¶168; Ex.2008 at 71:14–72:11; Ex.2013 at 48:25–49:11. Ferguson does not describe techniques for within a router and then state that those techniques can be extended to apply between routers. Ex.2007 ¶168; Ex.2013 at 48:25–49:11 (conceding that Ferguson does the opposite).

Second, regardless of whether Ferguson teaches the alleged “vice versa,” the relied-upon teaching in Ferguson (Ex.1007 at 5:61-6:6) is about only Ferguson’s own techniques, not Raz or its subports. Ex.2007 ¶169; *see also* Ex.2013 at 48:25–49:11 (“[Ferguson] techniques”). A POSA would not have understood this teaching in Ferguson to apply to Raz and would not have been motivated by this teaching in Ferguson to extend Raz’s mechanism for within a router to apply to between routers. Ex.2007 ¶169. Indeed, Petitioner fails to discuss any particulars of either Ferguson or Raz’s techniques, much less compare their particular techniques to explain why or how Ferguson’s disclosures would also apply to Raz’s techniques. *Id.* In fact, neither this paragraph of the Petition nor the paragraph of Petitioner’s expert declaration cited for this assertion (Ex.1003 ¶246) contains a single cite to Raz. Pet. 55-56.

Petitioner next asserts that Ferguson “addresses the same concerns” as Raz (Pet. 56), but as explained in section III.B, Raz and Ferguson address different problems and use different contrasting solutions. Ex.2007 ¶¶170.

Petitioner next asserts that “Ferguson teaches a POSITA that [Raz’s] method of assigning a subport ... could also be implemented *between* MPLS/LAG switches.” Pet. 56 (citing Ex.1003 ¶¶250-51). But a proper motivation is not established by what “could” be done. *PersonalWeb*, 848 F.3d at 993-94. Regardless, neither Ferguson nor this assertion address the specific teachings of Raz,

much less how Raz would purportedly be applied to communications between switches. Ex.2007 ¶171. Indeed, the cited paragraphs of Petitioner’s expert declaration (Ex.1003 ¶¶250-51) contain no cites or discussion regarding the specific teachings of Raz.

Petitioner next asserts that “a POSITA reviewing Ferguson” would have found it “desirable to implement the techniques in Raz for assigning a ... subport to assign a ... port to communicate packets along ‘physical interconnects’ between ‘two switches.’” Pet. 56-57 (citing Ferguson and Ex.1003 ¶250). But, as with the previous assertion above, this again fails to address the specific teachings of Raz and again relies on one of the same deficient paragraphs of Petitioner’s expert declaration (Ex.1003 ¶250) that likewise fails to address the specific teachings of Raz. Ex.2007 ¶172. Indeed, Petitioner does not explain why the generic alleged modification “would be desirable” in connection with Raz, which actually teaches against the modification because it is directed to a provisioning mechanism specifically for inside a network device. *Id.*; Pet. 56-57; Ex.1006 at Abstract, 1:40-62, 6:24-27, 6:51-54; section II.B.2 *supra*.

Petitioner next asserts that “[t]he teachings of Ferguson are compatible with and readily implementable ... with Raz.” Pet. 57. But this assertion is conclusory, as it fails to identify or discuss in detail the referenced “teachings of Ferguson” or relevant teachings of Raz, much less explain the alleged compatibility and

implementation. *Id.*; Ex.2007 ¶173. It is also false because, as explained in section III.B, there are fundamental differences between the methods of Ferguson and Raz. Ex.2007 ¶173.

Petitioner next briefly mentions Ferguson’s “aggregate interface” of physical interconnects but without any discussion of Raz, much less any motivation to combine or modify. Pet. 57-58; Ex.2007 ¶174.

Petitioner next asserts that “Ferguson would have taught a POSITA that Raz’s method of assigning a subport ... within the LSR could also be implemented ... between network devices.” Pet. 58-59 (citing Ex.1003 ¶¶251, 255-56). This assertion is essentially the same as one discussed above from page 56 of the Petition, and it is likewise deficient because (i) what “could” be done does not establish a proper motivation and (ii) this assertion does not cite or address the specific teachings of Raz, nor do the relied-upon paragraphs of Petitioner’s expert declaration cited therefor (Ex.1003 ¶¶251, 255-56), which instead merely refer in an oversimplified way to Raz’s “techniques” for assigning subports or forwarding packets. *PersonalWeb*, 848 F.3d at 993-94; Ex.2007 ¶175.

Petitioner’s next paragraph asserts that “Ferguson states that the techniques used ... *within* a router ... can also be applied ... *between* two routers.” Pet. 59. First, Ferguson actually teaches the opposite, as Ferguson describes techniques for *between* routers and then says that those inter-router techniques also “may be ...

applied” to *within* a router. Ex.1007 at 5:61-6:6; Ex.2007 ¶176; Ex.2008 at 71:14–72:11; Ex.2013 at 48:25–49:11. The remainder of Petitioner’s paragraph acknowledges this. Pet. 59 (citing Ex.1007 at 5:61-6:6). Second, as Petitioner notes, Ferguson teaches this about “its” techniques, not Raz’s techniques. Pet. 59; Ex.2007 ¶176; Ex.2013 at 48:25–49:11. Ferguson does not cite or discuss Raz’s techniques. *See* Ex.2008 at 59:21–60:4. Also, as explained in section III.B, there are fundamental differences between the techniques of Ferguson and Raz. Ex.2007 ¶176. Third, this paragraph of the Petition contains no citation or discussion of Raz and also does not cite any support from Petitioner’s expert declaration. Pet. 59; Ex.2007 ¶176. Ultimately, the fact that Ferguson’s teachings regarding communications between routers can also apply within a single router does not mean that the opposite is true for Raz. Ex.2007 ¶176.

Petitioner’s next paragraph asserts that based on the “disclosures in Ferguson,” “a POSITA would have understood that the techniques disclosed in Raz for assigning ... subports” within an LSR “could also be applied” between LSRs. Pet. 59-60. However, this paragraph of the Petition contains no citation or discussion of Raz’s actual specific teachings, much less explains how Raz would purportedly be modified to apply between LSRs. Pet. 59-60; Ex.2007 ¶177. Moreover, a mere possibility of how Raz “could” be applied does not establish the requisite motivation for obviousness. *PersonalWeb*, 848 F.3d at 993-94.

Petitioner also asserts in that same paragraph that “packets are communicated *the same way* within a device as between devices.” Pet. 60 (emphasis added); *see also* Pet. 56 (“same techniques” for both inside and between LSRs). Petitioner’s expert declaration makes the same argument. Ex.1003 ¶¶250-251, 263 (“same way”; “same techniques”). But, first, neither Petitioner nor its expert explains *how* Raz’s particular techniques for subports *within* an LSR would purportedly be applied “*the same way*” to communications *between* LSRs. Ex.2007 ¶178. Second, as explained in sections II.A, II.B.2, and II.E.1-2, Raz’s subports are not for “communicat[ing]” but rather for internal processing, and also Raz could not be applied the “same way” for both within and between LSRs. *Id.*; Ex.1006 at 1:40-59. Third, how packets are processed and move within a switch is different from how packet streams are communicated between switches. Ex.2007 ¶178.

In sum, the Petition fails to establish a motivation to modify RFC 3209 and Raz (specifically, Raz) with Ferguson, as Petitioner does not explain specifically why or how a POSA would have modified or combined the particular teachings of the references to meet all of the claim limitations. Ex.2007 ¶¶162-79.

D. Petitioner Fails to Establish a Reasonable Expectation of Success

Regardless of whether Petitioner has established a motivation to modify RFC 3209 and Raz based on Ferguson, Petitioner has failed to establish a reasonable expectation of success in doing so. Ex.2007 ¶¶180-83.

Obviousness requires a reasonable expectation of success, separate and distinct from a motivation to modify. *Eli Lilly*, 8 F.4th at 1344.

Petitioner presents no argument that a POSA would have had a reasonable expectation of success in modifying Raz with Ferguson, and then combining that modified version of Raz with RFC 3209, to meet the claims. Ex.2007 ¶182. Neither the Petition nor Dr. Min's declaration includes any arguments even mentioning the requisite "reasonable expectation of success," despite Dr. Min's declaration recognizing the requirement exists in its "Understanding of the Governing Law" section. Ex.1003 ¶16.

Moreover, there is no reasonable expectation of success, including because Raz's method could not work with inter-router communications and because RFC 3209's and Raz's assignment and labeling processes are incompatible, as explained in sections II.B.2 and II.B.3, respectively. Ex.2007 ¶183. This is regardless of Ferguson. *Id.*

Ground 2 fails for this reason alone.

E. Even if Raz is Modified Based on Ferguson as Petitioner Asserts, Ground 2 Fails

Even if a POSA were motivated and capable of somehow modifying Raz in view of Ferguson to apply to communications between MPLS/LAG switches as Petitioner asserts (Pet. 56-60), Ground 2 nonetheless fails because such modification does not remedy the issues regarding combining Raz with RFC 3209, which also apply for Ground 2. *See* sections II.B.1, II.B.3, II.E.2-6, II.F, II.G *supra*; Ex.2007 ¶¶184, 186. Indeed, as explained in section III.A, Ground 2 does not address the specific teachings of RFC 3209 or modifications thereto.

Additionally, Ground 2 does not remedy Petitioner's failure to establish obviousness of limitations 15.1 and 15.6, as explained in section II.F, because Petitioner's Ground 2 analysis does not address those limitations (*see* Pet. 56-60). Ex.2007 ¶¶185-86.

IV. Conclusion

For the foregoing reasons, Petitioner has not established that any challenged claims of the '602 patent are obvious, and the Board should thus reject all grounds in the Petition and affirm the patentability of the challenged claims.

Date: March 4, 2024

Respectfully submitted,

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CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the foregoing document contains 13,994 words, and thus complies with the word-count limits of 37 C.F.R. § 42.24.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing PATENT OWNER RESPONSE was served on March 4, 2024 by filing this document through the P-TACTS platform as well as by delivering a copy via the delivery method indicated to the attorneys of record for the Petitioner as follows:

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