



Arista Networks, Inc. v. Corrigent Corporation

Patent Owner Corrigent's Presentation
Inter Partes Review of U.S. Patent No. 9,118,602
IPR2023-00839

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE



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Roadmap

- *Ground 1* – RFC 3209 and Raz
 - RFC 3209 and Raz fail to disclose or render obvious the claimed “LAG,” and in fact teach away from it
 - POSA would not have been motivated to combine RFC 3209 and Raz to disclose or render obvious assigning, and encoding a single physical tunnel port that is sent to a preceding node and transmitted between two MPLS/LAG switches
 - There is no reasonable expectation of success
 - RFC 3209 and Raz fail to disclose or render obvious claim 15’s “mapper”

- *Ground 2* – RFC 3209 in view of Raz and Ferguson
 - POSA would not have been motivated to combine RFC 3209, Raz, and Ferguson
 - There is no reasonable expectation of success
 - Ground 2 does not cure the problems with Ground 1

Overview of the '602 Patent

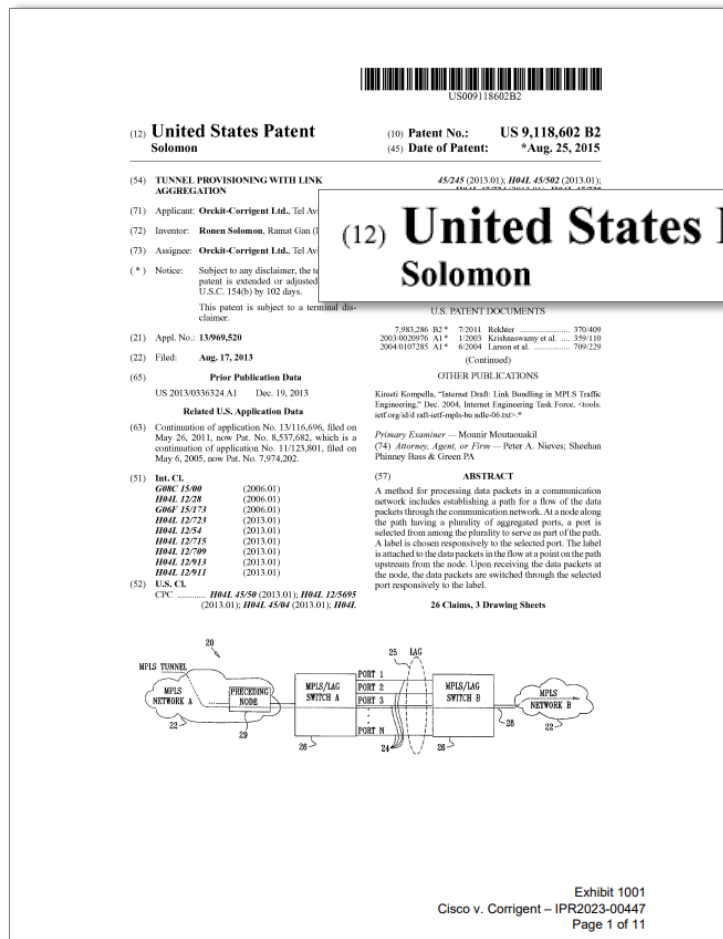
IPR2023-00839 – See POR, pp. 1-3, 5-6, 9, 14, 17, 27, 28; Sur-Reply, pp. 4, 7, 9, 10, 12

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

U.S. Patent No. 9,118,602



(12) **United States Patent
Solomon**

(10) **Patent No.: US 9,118,602 B2**
(45) **Date of Patent: *Aug. 25, 2015**

(54) **TUNNEL PROVISIONING WITH LINK
AGGREGATION**

(71) Applicant: **Orckit-Corrigent Ltd., Tel Aviv (IL)**

(72) Inventor: **Ronen Solomon, Ramat Gan (IL)**

(73) Assignee: **Orckit-Corrigent Ltd., Tel Aviv (IL)**

IPR2023-00839 – '602 Patent (Ex. 1001), p. 1

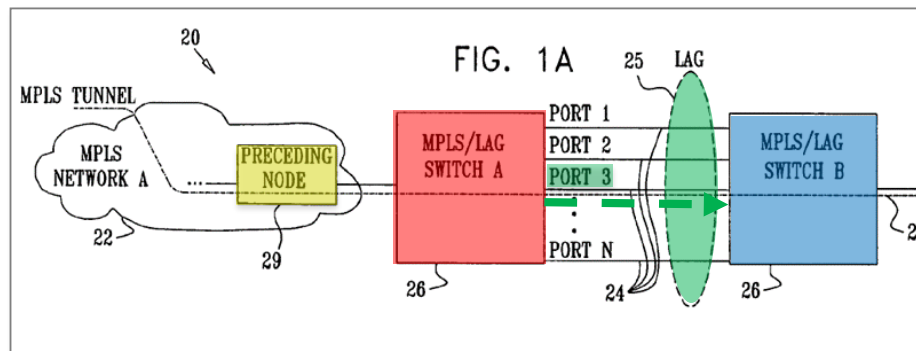
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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Arista v. Corrigent - IPR2023-00839
Patent Owner Corrigent Exhibit 2017-0004

'602 Patent



What is claimed is:

1. A method for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network, the method comprising the steps of:

assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG to a network tunnel, wherein the single physical tunnel port of the LAG meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port of the LAG has a port serial number;

dedicating a sub-set of bits in a data packet label prepared by the first MPLS/LAG switch to encode said port serial number of said single physical tunnel port of the LAG into the data packet label;

sending, by said first MPLS/LAG switch, the data packet label, in which said port serial number of said single physical tunnel port is encoded, to a preceding node;

receiving from the preceding node, by said first MPLS/LAG switch, a data packet comprising said data packet label, in which said port serial number of said single physical tunnel port is encoded; and

sending said data packet from said first MPLS/LAG switch to a second MSPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label.

IPR2023-00839 – '602 Patent (Ex. 1001) at Fig. 1A, claim 1

IPR2023-00839 – See POR, pp. 1-3, 5-6, 9, 14, 17, 27, 28; Sur-Reply, pp. 4, 7, 9, 10, 12

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Ground 1 (RFC 3209 and Raz):

Overview of RFC 3209 and Raz

IPR2023-00839 – See POR, pp. 6, 7, 8, 10-18, 22, 23, 27, 28, 31-38, 40-66; Sur-Reply, pp. 4, 5, 7, 9, 10, 13, 14, 20

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RFC 3209

Network Working Group
Request for Comments: 3209
Category: Standards Track

D. Awduche
Movaz Networks, Inc.
L. Berger
D. Gan
Juniper Networks, Inc.

RSVP-TE: Extensions to RSVP for LSP Tunnels

RSVP-TE: Extensions to RSVP for LSP Tunnels

Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Protocol Standards" (STD 1) for the status of this protocol. Distribution of this document is unlimited.

Copyright Notice

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Abstract

This document describes the use of RSVP (Resource Reservation Protocol), including all the necessary extensions, label-switched paths (LSPs) in MPLS (Multi-Protocol Label Switching). Since the flow along an LSP is completely identified by the ingress node of the path, these paths are referred to as LSP tunnels. A key application of LSP tunnels is to provide a means for explicitly routed label-switched paths. We propose several additional objects that extend the establishment of explicitly routed label-switched paths. The result is the instantiation of a signaling protocol. The result is the instantiation of a signaling protocol which can be automatically routed. failures, congestion, and bottlenecks.

Awduche, et al. Standards Track [Page 1]

ARISTA NETWORKS, INC. EXHIBIT 1010
Arista Networks, Inc. v. Corrigent Corporation, IPR2023-00839, Page 1

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Movaz Networks, Inc.
L. Berger
D. Gan
Juniper Networks, Inc.
T. Li
Procket Networks, Inc.
V. Srinivasan
Cosine Communications, Inc.
G. Swallow
Cisco Systems, Inc.
December 2001

IPR2023-00839 – RFC 3209 (Ex. 1010), p. 1

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Arista v. Corrigent - IPR2023-00839
Patent Owner Corrigent Exhibit 2017-0007

Overview of RFC 3209

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

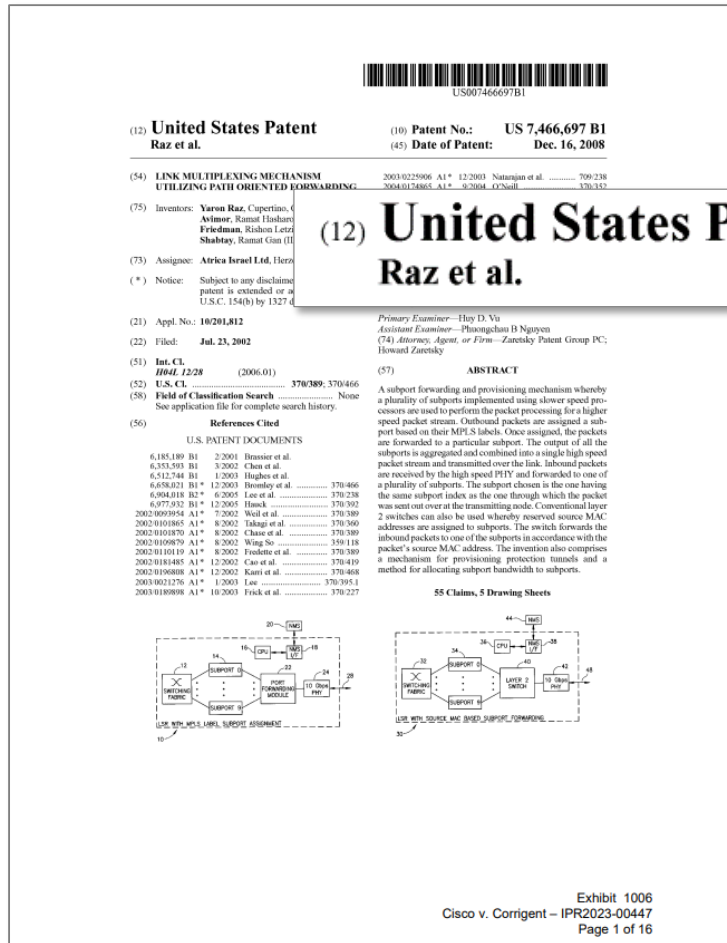
This document describes the use of RSVP (Resource Reservation Protocol), including all the necessary extensions, to establish label-switched paths (LSPs) in MPLS (Multi-Protocol Label Switching). Since the flow along an LSP is completely identified by the label applied at the ingress node of the path, these paths may be treated as tunnels. A key application of LSP tunnels is traffic engineering with MPLS as specified in RFC 2702.

IPR2023-00839 – RFC 3209 (Ex. 1010) at 1

forward traffic between and through them. Another example is RSVP-TE, which is described by Awduche et al., in IETF RFC 3209 entitled “RSVP-TE: Extensions to RSVP for LSP Tunnels” (December 2001), which is incorporated herein by reference. RSVP-TE extends the well-known Resource Reservation Protocol (RSVP), allowing the establishment of explicitly-routed LSPs using RSVP as a signaling protocol.

IPR2023-00839 – '602 Patent (Ex. 1001), 1:48-52

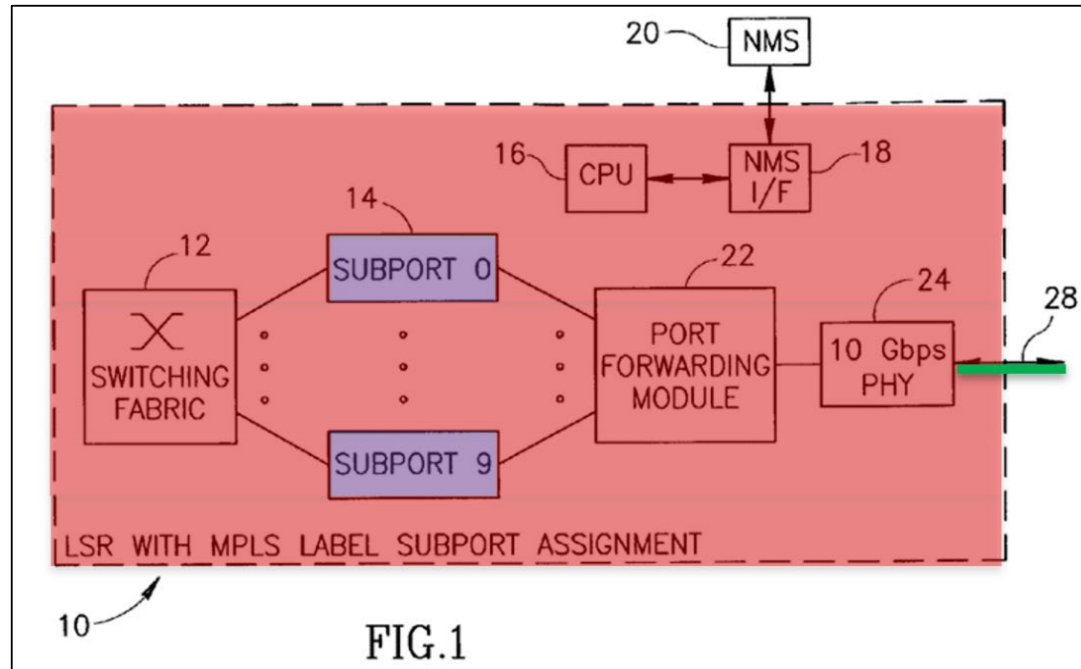
Raz



IPR2023-00839 – Raz (Ex. 1006), p. 1

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Overview of Raz



IPR2023-00839 – Raz (Ex. 1006) at Fig. 1

Overview of Raz

BACKGROUND OF THE INVENTION

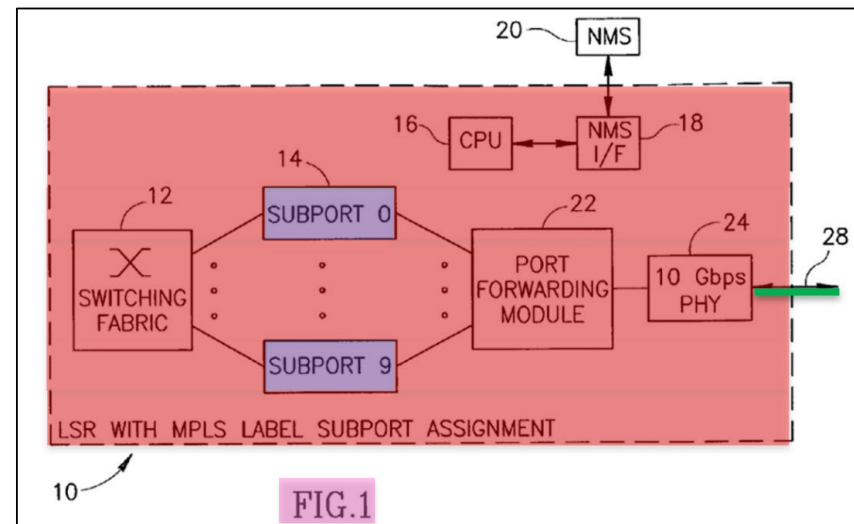
There is thus a need for a forwarding and provisioning mechanism that enables a high speed packet stream to be processed by multiple processors that operate at a slower rate than the inbound packet stream. The mechanism should be

SUMMARY OF THE INVENTION

The present invention provides a link multiplexing mechanism utilizing path oriented forwarding. The mechanism comprises 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. To provide the flexibility

DETAILED DESCRIPTION OF THE INVENTION

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. To provide the flexibility of a particular subport. The output of all the subports is aggregated and combined into a single high-speed packet stream and transmitted over the link. Inbound packets are received by the



ABSTRACT

A subport forwarding and provisioning mechanism whereby a plurality of subports implemented using slower speed processors are used to perform the packet processing for a higher speed packet stream. Outbound packets are assigned a subport based on their MPLS labels. Once assigned, the packets are forwarded to a particular subport. The output of all the subports is aggregated and combined into a single high speed packet stream and transmitted over the link. Inbound packets

IPR2023-00839 – Raz (Ex. 1006) at 1:56-59,
1:65-2:3, 6:24-27, 6:36-38, Fig. 1, Abstract

Ground 1 (RFC 3209 and Raz):

- *Roadmap for Ground 1*

- RFC 3209 and Raz fail to disclose or render obvious the claimed “LAG,” and in fact teach away from it
- POSA would not have been motivated to combine RFC 3209 and Raz to disclose or render obvious assigning, and encoding a single physical tunnel port that is sent to a preceding node and transmitted between two MPLS/LAG switches
- There is no reasonable expectation of success
- RFC 3209 and Raz fail to disclose or render obvious claim 15’s “mapper”

Ground 1 (RFC 3209 and Raz):

**RFC 3209 and Raz Do Not Disclose or
Render Obvious the Claimed “LAG”**

'602 Patent Claims Require a “LAG” Between Two MPLS/LAG Switches

What is claimed is:

1. A method for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network, the method comprising the steps of:

assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG to a network tunnel, wherein the single physical tunnel port of the LAG meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port of the LAG has a port serial number;

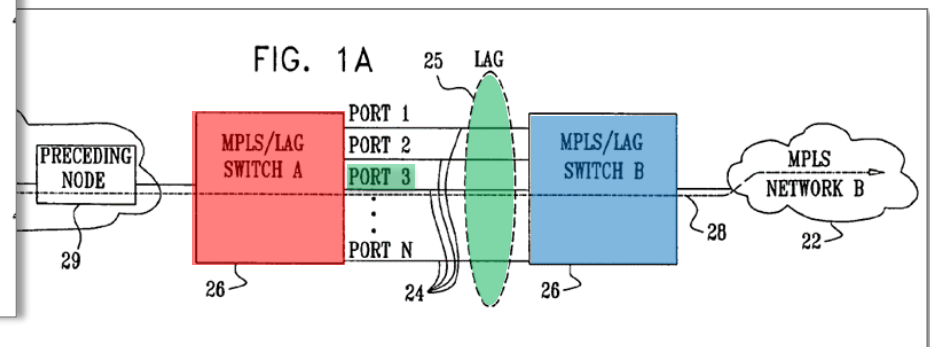
dedicating a sub-set of bits in a data packet label prepared by the first MPLS/LAG switch to encode said port serial number of said single physical tunnel port of the LAG into the data packet label;

sending, by said first MPLS/LAG switch, the data packet label, in which said port serial number of said single physical tunnel port is encoded, to a preceding node;

receiving from the preceding node, by said first MPLS/LAG switch, a data packet comprising said data packet label, in which said port serial number of said single physical tunnel port is encoded; and

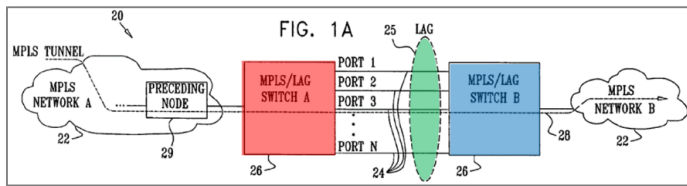
sending said data packet from said first MPLS/LAG switch to a second MPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label.

IPR2023-00839 – '602 Patent (Ex. 1001) at claim 1, Fig. 1A



Neither RFC 3209 nor Raz's Subports Do Not Disclose or Render Obvious a LAG

- A **LAG** is multiple *links* that are *between* switches



IPR2023-00839 – '602 Patent (Ex. 1001) at Fig. 1A

- RFC 3209 is an RSVP **standard** that does **not include** information regarding **links** between network devices.

RSVP-TE: Extensions to RSVP for LSP Tunnels

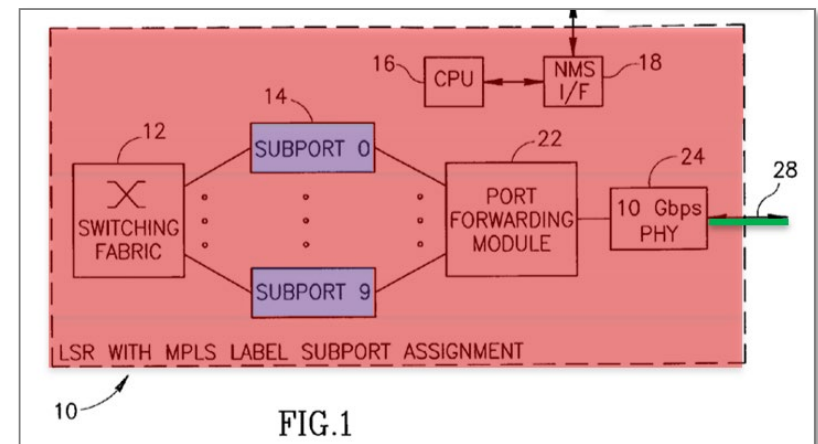
IPR2023-00839 – RFC 3209 (Ex. 1010), p. 1

have understood that RFC 3209 is directed to communicating between network devices but **does not include information regarding the links between devices** or disclose or render obvious a LAG. See, e.g., Ex.1010 at 1, 3-10. For this, I

IPR2023-00839 – RFC 3209 (Ex. 2007), ¶ 53

- Raz's **subports** are *processors* (not links) that are **within** LSRs (not between)
- Raz uses a **single** high-speed **link** between LSRs

a 10G link 28,



IPR2023-00839 – Raz (Ex. 1006) at Fig. 1, 1:56-59, 6:24-29, 6:36-38, 7:42-45,

Steptoe

IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

RFC 3209 Does Not Disclose or Render Obvious a LAG

- Petitioner does not rely on RFC 3209 for the claimed LAG and acknowledges that RFC 3209 does not disclose or render obvious a LAG by ***relying entirely*** on Raz for the claimed LAG.

In addition to the disclosures and suggestions of RFC 3209, Raz discloses implementation of a link aggregation group (LAG) in an MPLS network using Ethernet ports which a POSITA would have understood to implement into the system of RFC 3209. EX1006, 14:42-44. Specifically, Raz discloses the use of link

IPR2023-00839 – Petition, p. 17

A. Ground 1: RFC3209 in View of Raz Renders Claims 1-26 Obvious

1. Raz Teaches or Renders Obvious a “LAG”

As the Petition demonstrates, contrary to PO’s argument, Raz discloses or renders obvious the claimed LAG (“Link Aggregation Group”), and it would have been obvious to combine its teachings regarding a LAG with the system described by RFC3209. EX1034, ¶¶11-31.

IPR2023-00839 – Reply, p. 2

IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

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Raz's Subports Do Not Disclose or Render Obvious a LAG

- The Petition relies on Raz's **subports** *within an LSR* to teach the claimed LAG (Link Aggregation Group)

Raz discloses “[a] subport forwarding and provisioning mechanism whereby a plurality of subports [within an LSR] implemented using slower speed processors are used.” EX1006, Abstract, 1:66-2:3, 2:41-51, 6:24-27, 2:9-10, 6:34-35, 2:10-11, system of RFC 3209. EX1006, 14:42-44. Specifically, Raz discloses the use of link aggregation to transport high speed Ethernet network traffic within an LSR in an MPLS network. EX1006, 2:41-51. Packets from a high-speed Ethernet data stream

EX1006, 2:41-51, 2:52-67, 6:34-45. Figure 1 of Raz provides an example of ten subports (Subport 0-Subport 9) used to implement link aggregation within an LSR in an MPLS network:

packet stream through LAG subports in an LSR, as taught by Raz, also applies to communicating individual packets through interfaces operating as links between

IPR2023-00839 – Petition, pp. 6, 17-19

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IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Arista v. Corrigent - IPR2023-00839
Patent Owner Corrigent Exhibit 2017-0017

Raz's Subports Do Not Disclose or Render Obvious a LAG

- The Reply reiterates that Petitioner's obviousness theory is based on an alleged LAG "as taught by Raz"

110; EX1006, 6:51-54. In particular, the Petition explains that it would have been obvious to extend RFC3209's LSR teachings to incorporate LAG-compatible LSRs, as taught by Raz. Pet., 11-13.

IPR2023-00839 – Reply, p. 12

IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

Step toe

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Raz's Subports Do Not Disclose or Render Obvious a LAG

- The Board has already held that Raz does not disclose the claimed LAG

Petitioner states that “while Raz describes forwarding packets of a high-speed packet stream by assigning a subport within a LSR, a [person of ordinary skill in the art] would have understood that the method of Raz also could have been used for communicating packets from one MPLS/LAG switch to another MPLS/LAG switch.” Pet. 19 (citing Ex. 1004 ¶¶ 90–91).

Patent Owner argues, and we agree, that the cited portions of Raz do not disclose a LAG between two switches. PO Resp. 8–9. Petitioner acknowledges this; as stated in Petitioner’s Reply, “Petitioner has always acknowledged that Raz addresses the use of subports within an LSR, but a [person of ordinary skill in the art] would have found it obvious from Raz to use Ethernet physical data ports of a router or switch in an Ethernet LAG to communicate high-speed packet streams in [an] MPLS network.” Pet. Reply 2 (citing Pet. 15, 19, 22–25; Ex. 1021 ¶ 13; Ex. 1006, 1:16–19, 2:23–31, 7:7–29, 11:3–12, 13:16–19, 14:42–44, 15:56–58, 17:7–9). Petitioner

Cisco Systems, Inc. v. Corrigent Corp, IPR2023-00447, Paper 30, at pp. 7-8

Raz's Subports Do Not Disclose or Render Obvious a LAG

- Arista relies on the same internal subports and single 10G link that Cisco relied on as allegedly teaching the claimed LAG

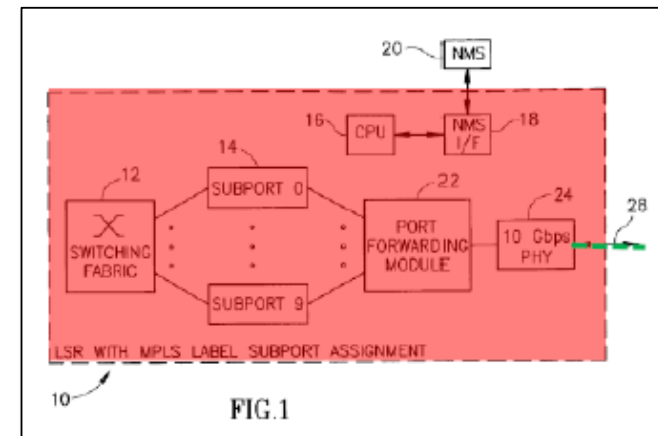
system of RFC 3209. EX1006, 14:42-44. Specifically, Raz discloses the use of link aggregation to transport high speed Ethernet network traffic within an LSR in an MPLS network. EX1006, 2:41-51. Packets from a high-speed Ethernet data stream

IPR2023-00839 – Petition at p. 17

Q And so the 10 subports, each of 1 gigabit, converge into a single 10 gigabit Ethernet cable?

A Yeah, that's right.

IPR2023-00839 – Min Dep. (Ex. 2016) at 32:18-21



IPR2023-00839 – Raz (Ex. 1006), Fig. 1; EX2010, Fig. 1

Raz's Subparts Do Not Disclose or Render Obvious a LAG

- The claimed **LAG** comprises multiple *links* that are *between* switches

What is claimed is:

1. A method for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network, the method comprising the steps of:

assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG to a network tunnel, wherein the single physical tunnel port of the LAG meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port of the LAG has a port serial number;

dedicating a sub-set of bits in a data packet label prepared by the first MPLS/LAG switch to encode said port serial number of said single physical tunnel port of the LAG into the data packet label;

sending, by said first MPLS/LAG switch, the data packet label, in which said port serial number of said single physical tunnel port is encoded, to a preceding node;

receiving from the preceding node, by said first MPLS/LAG switch, a data packet comprising said data packet label, in which said port serial number of said single physical tunnel port is encoded; and

sending said data packet from said first MPLS/LAG switch to a second MSPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label.

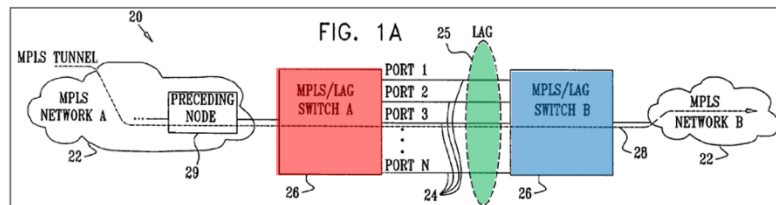
Ethernet Link Aggregation

Link aggregation (LAG) is a technique by which a group of parallel physical links between two endpoints in a data network can be joined together into a single logical link (referred to as a "LAG group"). Traffic transmitted between the endpoints is distributed among the physical links in a manner that is transparent to the clients that send and receive the traffic.

IPR2023-00839 – Ex. 1001 ('602 Patent) at 2:1-6

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.

IPR2023-00839 – IEEE 802.3ad (Ex. 2012) at Abstract



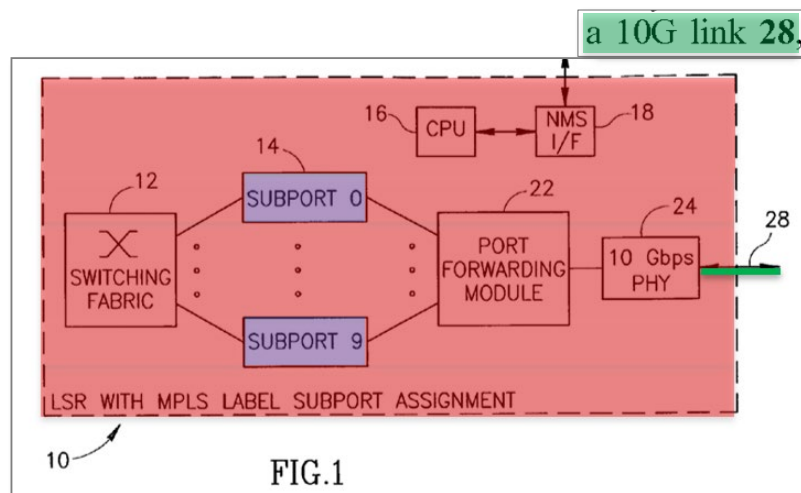
IPR2023-00839 – '602 Patent (Ex. 1001) at Claim 1, Fig. 1A

IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

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Raz's Subports Do Not Disclose or Render Obvious a LAG

- Raz's **subports** are *processors* (not links) that are *within* LSRs (not between)
- Raz uses a *single* high-speed link between LSRs



IPR2023-00839 – Raz (Ex. 1006) at Fig. 1, 1:56-59, 6:24-29, 7:42-45, 6:36-38

Raz:

There is thus a need for 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. The mechanism should be

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. To provide the flexibility required for protocols such as MPLS, a network processor or FPGA is used to implement the subport.

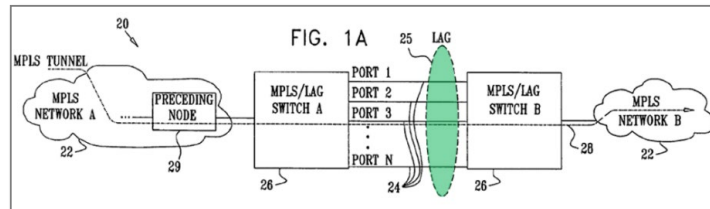
ously assigned label indicating subport 3. The port forwarding module in LSR B examines the label in the received packet and in response thereto forwards the packet to subport 3 for packet processing. Unlabeled packets do not belong to

particular subport. The output of all the subports is aggregated and combined into a single high-speed packet stream and transmitted over the link. Inbound packets are received by the

Raz's Subports Do Not Disclose or Render Obvious a LAG

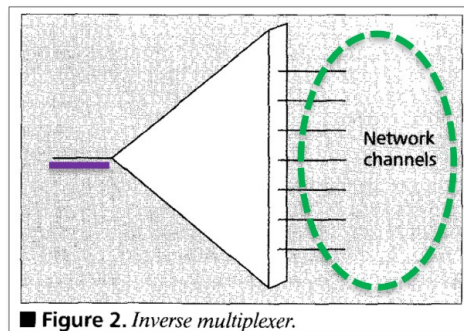
- Raz is directed to **multiplexing** subport outputs for transmission via the **single** high-speed link, which is the **opposite** of and **teaches away** from a **LAG** (i.e., **inverse multiplexing**)

'602 Patent:



IPR2023-00839 – '602 Patent (Ex. 1001) at Fig. 1A

LAG (inverse multiplexing):



■ Figure 2. Inverse multiplexer.

Raz:

LINK MULTIPLEXING MECHANISM UTILIZING PATH ORIENTED FORWARDING

The present invention provides a link **multiplexing** mechanism utilizing path oriented forwarding. The mechanism

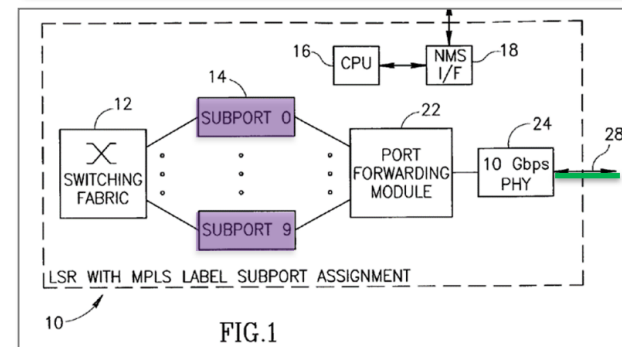
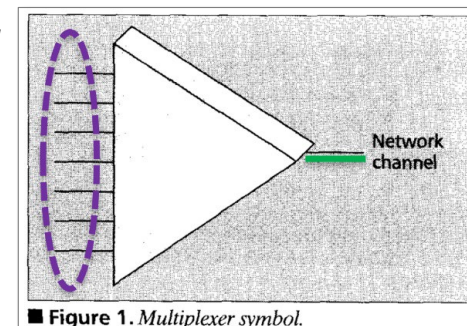


FIG.1

IPR2023-00839 – Raz (Ex. 1006) at 1:1-2, 1:65-66, Fig. 1

Multiplexing:



■ Figure 1. Multiplexer symbol.

IPR2023-00839 – IEEE Commc'ns Magazine (Ex. 2010) at Figs. 1-2

IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

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Raz's Subports Do Not Disclose or Render Obvious a LAG

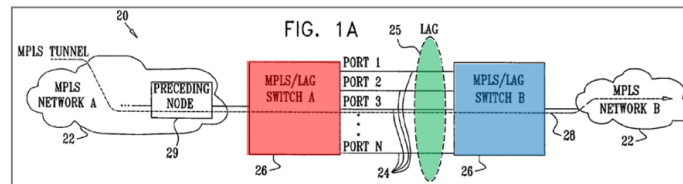
- The Board has already agreed that Raz's multiplexing teaches the exact opposite of the claimed LAG, and that it is "fundamentally different"

Further, we agree with Patent Owner that Raz is fundamentally different with its teachings of multiplexing the outputs of multiple slow-speed subports/processors into a single stream for transmission across a single high-speed link. PO Resp. 7–9, 12–13, 15–16; PO Sur-reply 4–5. As stated in Raz, "[t]he 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. 1006, 6:24–27.

Cisco Systems, Inc. v. Corrigent Corp, IPR2023-00447, Paper 30, at pp. 8-9

Raz's Subports Do Not Disclose or Render Obvious a LAG

- The Reply insists that Raz's subports are a LAG, but Raz's subports are not the claimed LAG that requires **multiple links** that are *between* switches



IPR2023-00839 – '602 Patent (Ex. 1001) at Fig. 1A

- There is no dispute that Raz's subports – or processors – are internal and are used to **multiplex** processing that occurs ***within a router*** into a **single** packet stream

system of RFC 3209. EX1006, 14:42-44. Specifically, Raz discloses the use of link aggregation to transport high speed Ethernet network traffic **within an LSR** in an MPLS network. EX1006, 2:41-51. Packets from a high-speed Ethernet data stream

IPR2023-00839 – Petition, p. 17

¶¶64, 85, 96; EX1034, ¶¶19-21. Raz's subports provide **multiple 1G pathways** for handling packet streams and are logically associated and treated as **a single aggregated 10G pathway**. EX1034, ¶¶19-21; EX1006, 7:7-16 ("10G interface that is

IPR2023-00839 – Reply, p. 3

- Even Cisco, the prior Petitioner in IPR2023-00447, admitted:

7, "POPR"), and it fails here. EX1021, ¶¶9-14. **Petitioner has always acknowledged that Raz addresses the use of subports within an LSR** (see Paper 1 at 15, 19 and 22-

Cisco Systems, Inc. v. Corrigent Corp, IPR2023-00447 – Paper 21 at p. 1-2

IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

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Raz's Subports Do Not Disclose or Render Obvious a LAG

- The Reply asserts an IEEE 802.3ad standard argument that is **new** and contradictory

Reply:

A POSITA would understand that Raz's associated group of subports are a LAG. *Id.* The Ethernet LAG standards-defining document (802.3ad) explains a LAG is a binding of ports to an Aggregator: "[t]he Aggregator binds to one or more *ports*

27. But LAG does not require multiple physical links, and PO appears to fail to take into consideration the necessary *ports* of a LAG. EX1034, ¶¶12-18. 802.3ad defines an "Aggregation Link" as "[a]n instance of a MAC-Physical Layer-Medium[-]Physical Layer-MAC entity between a pair of Aggregation Systems." EX1033,

IPR2023-00839 – Reply, pp. 2-5

Petition:

Raz discloses "[a] subport forwarding and provisioning mechanism whereby a plurality of subports [within an LSR] implemented using slower speed processors are used." EX1006, Abstract, 1:66-2:3, 2:41-51, 6:24-27, 2:9-10, 6:34-35, 2:10-11,

EX1006, 2:41-51, 2:52-67, 6:34-45. Figure 1 of Raz provides an example of ten subports (Subport 0-Subport 9) used to implement link aggregation within an LSR in an MPLS network:

IPR2023-00839 – Petition, pp. 6, 18

IPR2023-00839 – See POR, pp. 5-11, 26-29; Sur-Reply, pp. 2-11

Steptoe

Raz's Subports Do Not Disclose or Render Obvious a LAG

- The Reply's new IEEE 802.3ad standard argument is **wrong** because a LAG requires multiple *links* and cannot be a *single* link.

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.

1.4.xxx Link Aggregation Group: A group of links that appear to a MAC Client as if they were a single link. All links in a Link Aggregation Group connect between the same pair of Aggregation Systems. One or more conversations may be associated with each link that is part of a Link Aggregation Group. (See IEEE 802.3 Clause 43.).

1.4.141 link: The transmission path between any two interfaces of generic cabling. (From ISO/IEC 11801.)

IPR2023-00839 –Ex. 2012 at Abstract, p. 3.

- Petitioner's attempted to equate Raz's subport with a link, but their expert conceded that a link and a port are two different things

Q So at least according to 802.3ad, a link and a port are two different things, right?

A Yeah, they are two different things.

IPR2023-00839 –Ex. 2015 at p. 20

Mr. Suarez, that it doesn't really make sense to have just one port in a LAG. But I don't know if

IPR2023-00839 –Ex. 2015 at p. 20

Raz's Subports Do Not Disclose or Render Obvious a LAG

- The Reply's new IEEE 802.3ad standard theory should be disregarded
 - PTAB Consolidated Trial Practice Guide (Nov. 2019) at 73-74 (instructing that “petitioner may not submit new evidence or argument in reply that it could have presented earlier,” and “a reply ...that raises a new issue or belatedly presents evidence may not be considered”)
 - *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369-70 (Fed. Cir. 2016) (affirming the Board's decision excluding petitioner's reply and accompanying declaration for presenting a new obviousness argument supported by new evidence not relied upon in the Petition)
 - *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367-68 (Fed. Cir. 2015) (approving “the Board's rejection of [petitioner's] reliance, in its Reply submissions, on previously unidentified portions of a prior-art reference to make a meaningfully distinct contention”)

Raz's Subports Do Not Disclose or Render Obvious a LAG

- Petitioner continues to rely on Rabie (which is not even part of Ground 1) in its strained bid for obviousness

Rabie is *not* part of Ground 1

have understood that bundled links may connect LSRs together and that an LSP path to be provisioned might involve the choice of one of the component links in the bundle. *See, e.g.,* EX1021, 6:58-63 (“As is typical, each router includes a

IPR2023-00839 –Petition at p. 28

and [1.5]. POR, 36 n.12. Rabie is used to support the motivation to combine, further supporting the motivation to use Raz’s ability to select a particular port of the

IPR2023-00839 –Reply at p. 10

A LAG Is Not Disclosed or Obvious Between Raz's LSRs

- Therefore, the claimed LAG is not disclosed or rendered obvious in Raz (and thus within the alleged RFC 3209 and Raz combination) based on either:
 - The Petition's support arguments
 - The Reply's new IEEE 802.3ad standard argument

Ground 1 (RFC 3209 and Raz):

RFC 3209 and Raz Do Not Disclose or Render Obvious Assigning and Encoding a Single Physical Tunnel Port for *Sending* a Packet Between MPLS/LAG Switches

IPR2023-00839 – See POR, pp. 11-24, 29-46, 53-66, 68; Sur-Reply, pp. 12-18, 21-23, 25

Steptoe

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Ground 1 (RFC 3209 and Raz):

POSA Would Not Have Combined RFC 3209 and Raz

IPR2023-00839 – See POR, pp. 11-24, 29-46, 53-66, 68; Sur-Reply, pp. 12-18, 21-23, 25

Steptoe

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Claims Are Directed to Communicating Between Two MPLS/LAG Switches Via a Single Physical Tunnel Port of a LAG

What is claimed is:

1. A method for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network, the method comprising the steps of:

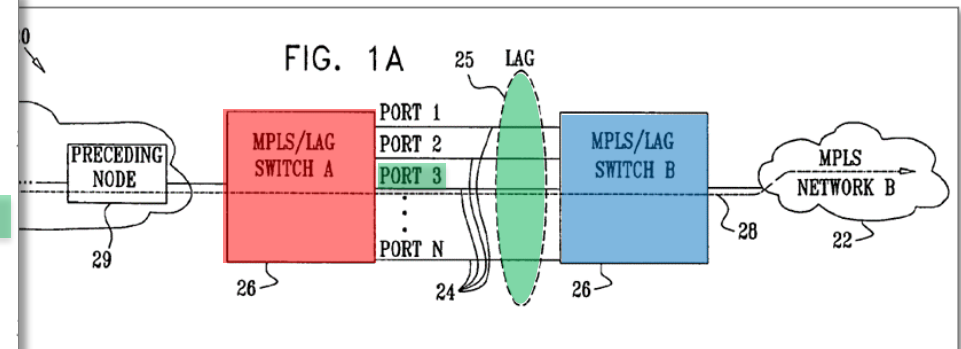
assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG to a network tunnel, wherein the single physical tunnel port of the LAG meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port of the LAG has a port serial number;

dedicating a sub-set of bits in a data packet label prepared by the first MPLS/LAG switch to encode said port serial number of said single physical tunnel port of the LAG into the data packet label;

sending, by said first MPLS/LAG switch, the data packet label, in which said port serial number of said single physical tunnel port is encoded, to a preceding node;

receiving from the preceding node, by said first MPLS/LAG switch, a data packet comprising said data packet label, in which said port serial number of said single physical tunnel port is encoded; and

sending said data packet from said first MPLS/LAG switch to a second MPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label.



IPR2023-00839 – '602 Patent (Ex. 1001) at claim 1, Fig. 1A

IPR2023-00839 – See POR, pp. 2, 6, 11, 14, 17, 37-42; Sur-Reply, pp. 1, 2, 4, 5, 9, 12, 15, 17, 21, 23

Steptoe

RFC 3209 and Raz Are Directed to Different Problems and Solutions

- RFC's problem is improving communication **between** nodes of a network and assumes the nodes have sufficient processing capacity

RFC 3209: congestion, and bottlenecks. Furthermore, multiple parallel LSP tunnels can be established between two nodes, and traffic between the two nodes can be mapped onto the LSP tunnels according to local policy. Although traffic engineering (that is, performance

IPR2023-00839 – RFC 3209 (Ex. 1010) at pp. 1, 3-5, 8-10

- Raz's problem is how to handle a single high-speed link with slow-speed processors **within** an LSR

Raz: 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. To pro-

IPR2023-00839 – Raz (Ex. 1006) at 6:24-27

- The '602 patent concerns **a LAG** between switches and assumes that the switches have sufficient processing capacity

'602 Patent: What is claimed is:
1. A method for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network, the

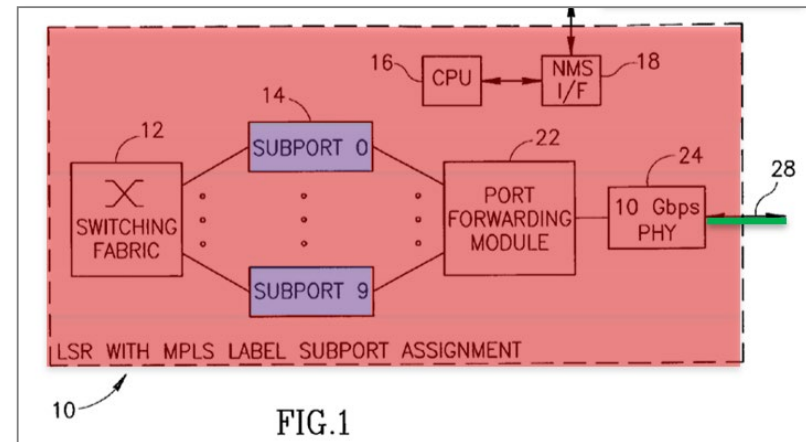
IPR2023-00839 – '602 Patent (Ex. 1001) at claim 1

IPR2023-00839 – See POR, pp. 12-13; Sur-Reply, pp. 23-24

Steptoe

Modifying RFC 3209 to Include Raz's Subport Within an LSR Results in Non-interoperable Implementation

- Raz's **subports** are *processors* (not links) that are **within** LSRs (not between)
- This operation **within** an LSR is outside purview of MPLS



IPR2023-00839 – Raz (Ex. 1006) at 7:26-27, 7:18-19, 6:43-45

- Including Raz's subport in RFC 3209 would result in non-interoperable implementation

RFC 3209: The purpose of this document is to describe the use of RSVP to establish LSP tunnels. The intent is to fully describe all the objects, packet formats, and procedures required to realize **interoperable implementations**. A few new objects are also defined that enhance management and diagnostics of LSP tunnels.

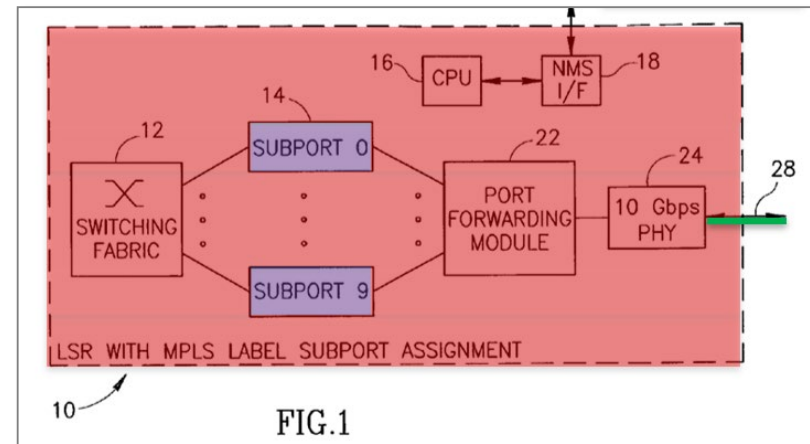
IPR2023-00839 – RFC 3209 (Ex. 1010) at p. 4

IPR2023-00839 – See POR, pp. 13, 22

Steptoe

POSA Would Not and Could Not Have Implemented Raz's LAG Between Two Network Devices

- Raz's uses multiple subports to increase the **internal** processing of an LSR and capacity of External links exceed the internal processors



IPR2023-00839 – Raz (Ex. 1006) at 7:26-27, 7:18-19, 6:43-45

Further, it is intended that the mechanism of the present invention be implemented in network devices such as routers (e.g., LSRs in MPLS networks) making up the nodes in a network and include edge nodes and intermediate nodes. It is

IPR2023-00839 – Raz (Ex. 1006) at 6:51-54

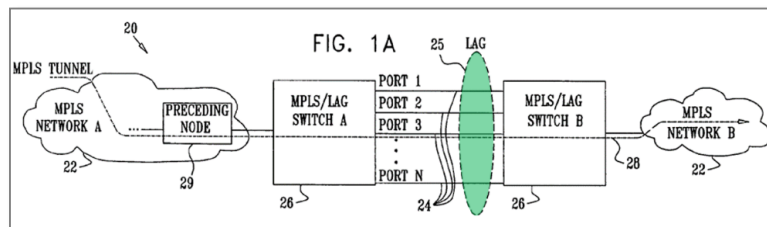
IPR2023-00839 – See POR, pp. 14-17, 53-58; Sur-Reply, pp. 2-5, 22-24

Steptoe

POSA Would Not and Could Not Have Implemented Raz's LAG Between Two Network Devices

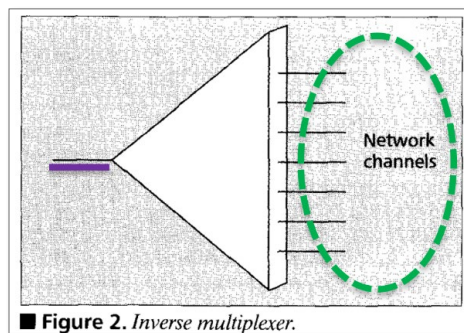
- Even if a LAG can be added between two LSRs of RFC 3209, Raz's subport provisioning between two nodes would render the mechanism inoperable for its intended purpose

'602 Patent:



IPR2023-00839 – '602 Patent
(Ex. 1001) at Fig. 1A

LAG (inverse multiplexing):



■ Figure 2. Inverse multiplexer.

IPR2023-00839 – IEEE Commc'ns Magazine (Ex. 2010) at Figs. 1-2

IPR2023-00839 – See POR, pp. 14-17, 53-58; Sur-Reply, pp. 2-5, 22-24

Raz:

LINK MULTIPLEXING MECHANISM UTILIZING PATH ORIENTED FORWARDING

The present invention provides a link multiplexing mechanism utilizing path oriented forwarding. The mechanism

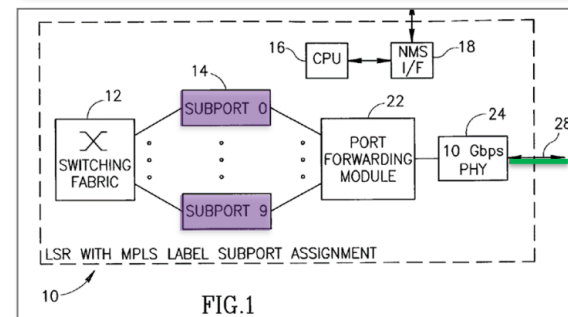
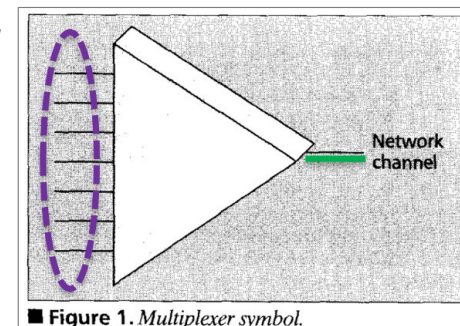


FIG. 1

IPR2023-00839
– Raz (Ex. 1006)
at 1:1-2, 1:65-
66, Fig. 1

Multiplexing:



■ Figure 1. Multiplexer symbol.

Steptoe

RFC 3209 and Raz's Assignment Labeling Methods Are Incompatible

- 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.

4.3.4.1. Selection of the Next Hop

A node receiving a Path message containing an EXPLICIT_ROUTE object must determine the next hop for this path. This is necessary because the next abstract node along the explicit route might be an IP subnet or an Autonomous System. Therefore, selection of this next hop may involve a decision from a set of feasible alternatives. The criteria used to make a selection from feasible alternatives is implementation dependent and can also be impacted by local policy, and is beyond the

IPR2023-00839 – RFC 3209 (Ex. 1010) at p. 28-30

- 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**.

width. Note that it is the downstream (i.e. receiving) node that determines the subport it wants to receive the LSP on. This

to 1G subports is based on LSPs. Thus, the MPLS label is used in order to assign an incoming packet to one of the subports.

itself. The subports used on both sides of the next hop, however, are independent of the current hop. Thus, the subports may be different for each hop of the connection.

IPR2023-00839 – Raz (Ex. 1006) at 7:26-27, 7:18-19, 6:43-45

IPR2023-00839 – See POR, pp. 17, 18, 29-33, 36-44; Sur-Reply, pp. 10-13, 15, 16

Steptoe

Ground 1 (RFC 3209 and Raz):

Petitioner Fails to Establish a Motivation to Modify RFC 3209 With Raz to Arrive at the Claimed Invention

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

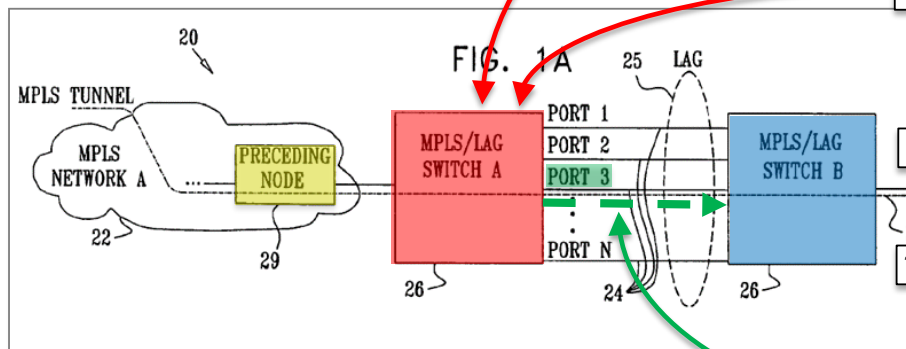
Steptoe

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

'602 Patent Claimed Process

- a single physical tunnel port of a LAG is (1.1) assigned and (1.2) encoded in a label by the first MPLS/LAG switch; and
- the first switch receives a packet with the label from the preceding node and then (1.5) **SENDS** it via the single physical tunnel port



What is claimed is:

1. A method for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network, the method comprising the steps of:

- 1.1 assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG to a network tunnel, wherein the single physical tunnel port of the LAG meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port of the LAG has a port serial number;
- 1.2 dedicating a sub-set of bits in a data packet label prepared by the first MPLS/LAG switch to encode said port serial number of said single physical tunnel port of the LAG into the data packet label;
- 1.3 sending, by said first MPLS/LAG switch, the data packet label, in which said port serial number of said single physical tunnel port is encoded, to a preceding node;
- 1.4 receiving from the preceding node, by said first MPLS/LAG switch, a data packet comprising said data packet label, in which said port serial number of said single physical tunnel port is encoded; and
- 1.5 sending said data packet from said first MPLS/LAG switch to a second MPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label.

IPR2023-00839 – '602 Patent (Ex. 1001) at Fig. 1A, claim 1

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Steptoe

RFC 3209 Standard

- RFC 3209's explicit routing involves each intermediate node along the route making an **independent forwarding decision** – i.e., an independent *assignment* of network topology to the requested LSP.

4.3.4.1. Selection of the Next Hop

A node receiving a Path message containing an EXPLICIT_ROUTE object must determine the next hop for this path. This is necessary because the next abstract node along the explicit route might be an IP subnet or an Autonomous System. Therefore, selection of this next hop may involve a decision from a set of feasible alternatives. The criteria used to make a selection from feasible alternatives is implementation dependent and can also be impacted by local policy, and is beyond the

scope of this specification. However, it is assumed that each node will make a best effort attempt to determine a loop-free path. Note that paths so determined can be overridden by local policy.

IPR2023-00839 – RFC 3209 (Ex. 1010) at p. 28-30

- Dr. Min admitted that RFC 3209's explicit routing involves independent forwarding decision

(EX1010, Section 1.1), each intermediate node along the route may make an independent forwarding decision (i.e., an independent *assignment* of network topology to the requested LSP): “A node receiving a Path message containing an

IPR2023-00839 – Ex. 1003, ¶102

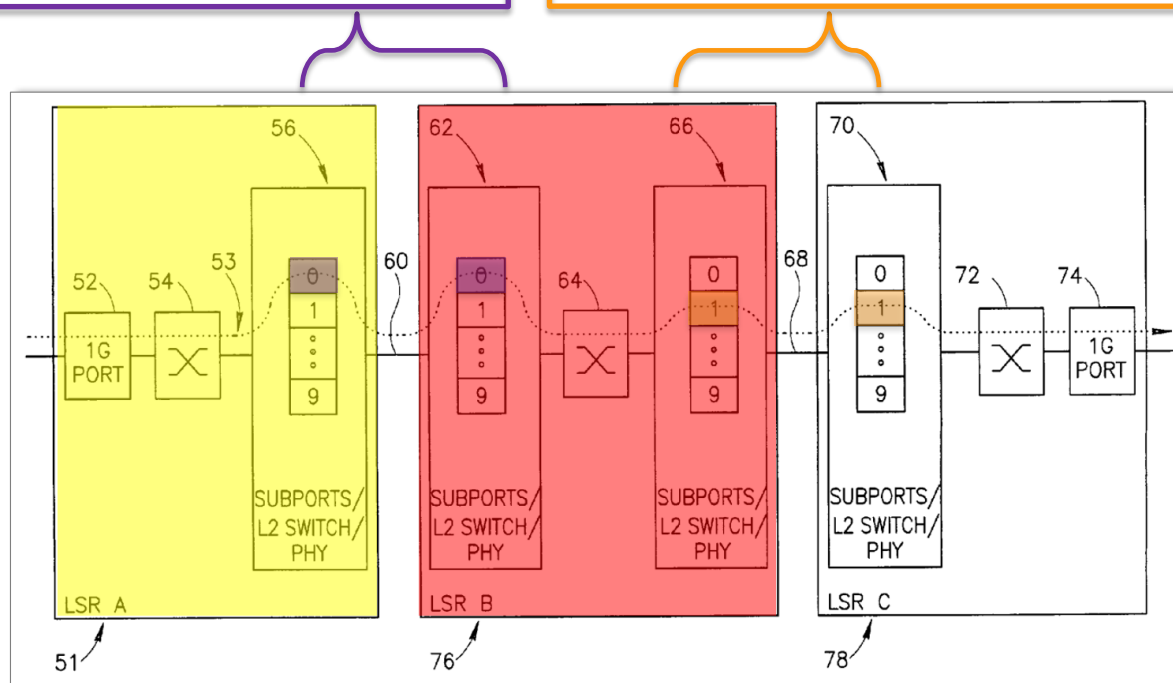
IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Steptoe

Raz's Mechanism

a **subport** is assigned and encoded in a label by a **first LSR**, which uses that **subport** for packets it **RECEIVES** from the **preceding LSR**

whatever subport is used for packets that the **first LSR** sends to the next downstream LSR is **independently selected** and encoded in a label by that next downstream LSR



IPR2023-00839 – Raz (Ex. 1006) at Fig. 3

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Steptoe

Raz's Mechanism

width. Note that it is the downstream (i.e. receiving) node that determines the subport it wants to receive the LSP on. This

to 1G subports is based on LSPs. Thus, the MPLS label is used in order to assign an incoming packet to one of the subports.

itself. The subports used on both sides of the next hop, however, are independent of the current hop. Thus, the subports may be different for each hop of the connection.

IPR2023-00839 – Raz (Ex. 1006) at 7:26-27, 7:18-19, 6:43-45

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Steptoe

Ground 1 (RFC 3209 and Raz):

The Petition's Showing for Motivation to Modify RFC 3209 With Raz Is Deficient

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Steptoe

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Petition Does Not Explain Why or How RFC 3209 and Raz Would Be Combined Together

- The Petition fails to explain *why* or *how* RFC 3209 would be modified to use a LAG or to apply to communications between two MPLS/LAG switches and a preceding node as claimed
 - Fails to explain how Raz's multiplexing would be implemented within RFC 3209 to implement the opposite—inverse multiplexing—between two MPLS switches
 - **Fails to explain how the label allocation** and distribution protocols of RFC 3209 and Raz would work together
 - Avoids **explaining how RFC 3209 and Raz would work together**, or provide any example of what the combination looks like
- The Reply fails to remedy the Petition's deficiency, as it fails to identify any motivation in the Petition and again fails to explain *how* RFC 3209's specific teachings would have been modified in light of Raz

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Steptoe

Ground 1 (RFC 3209 and Raz):

**POSA Would Not Have Been
Motivated to Combine RFC 3209 and
Raz to Assign and Encode a “Single
Physical Tunnel Port” of a LAG**

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

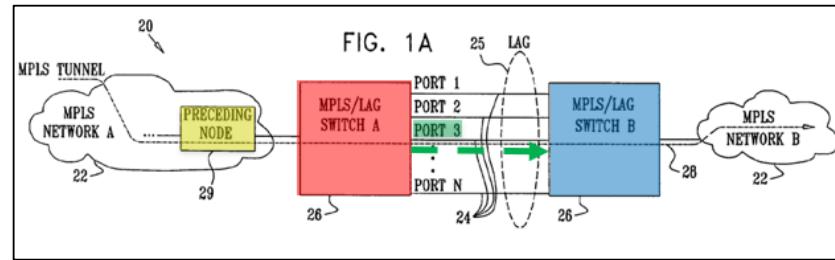
Steptoe

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

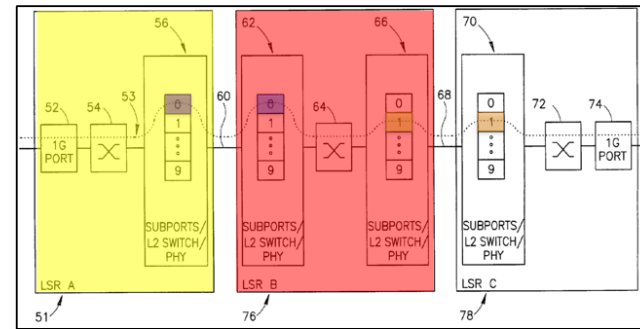
No Motivation to Assign the Same Subport Between a Tunnel That Spans Three Nodes

- Claims require all three nodes (preceding node, Switch A, and Switch B) to utilize the physical tunnel port 3



IPR2023-00839 – '602 Patent (Ex. 1001) at claim 1, Fig. 1A

- In Raz, whatever subport is used for packets that the first LSR sends to the next downstream LSR is independently selected



IPR2023-00839 – Raz (Ex. 1006) at Fig. 3

- Petitioner's expert admits that Raz and RFC 3209 make independent forwarding decisions

Q Okay. And so just like Raz, RFC 3209 teaches that port assignment is an independent decision that's made at each hop?

A Yeah. So those two are completely consistent in that matter.

IPR2023-00839 – EX. 2016 at 54:1-55:2

Steptoe

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Teachings of RFC 3209 and Raz Are Contradictory

- The Reply acknowledges that RFC 3209 and Raz provide contradictory teachings of which node selects the port to be used at the next hop

Raz discloses that a downstream LSR may make the subport selection, while RFC3209 uses an upstream LSR for interface selection,

IPR2023-00839 – Reply at p. 9

- The Reply does not reconcile these teachings or explain how a POSA would have been motivated to pursue the claimed invention and simply asserts that both upstream and downstream LSRs would be **capable** of making subport selections.

explains that both upstream and downstream LSRs would, in that case, be capable of making the subport selection and would be compatible with RFC3209's

IPR2023-00839 – Reply at p. 9

IPR2023-00839 – See POR, pp. 16, 28, 19-24, 38-40, 59-67; Sur-Reply, pp. 1, 4, 11-19, 21-23, 25

Steptoe

Teachings of RFC 3209 and Raz Are Contradictory

- The Board rejected similar arguments in the prior proceeding

were not made in the Petition (*see* Pet. 22–25), and Petitioner’s assertions that Raz’s teachings “just as easily could have been implemented” in the manner claimed is improper hindsight and inconsistent with the fundamental differences between Raz’s multiplexing within an LSR and the claimed link aggregation and port assignment between MPLS/LAG switches.

Cisco Systems, Inc. v. Corrigent Corp, IPR2023-00447, Paper 30, at pp. 9-10

No Motivation to Combine RFC 3209 and Raz

- Dr. Min's Reply (cited in the Reply brief) also argues for the first time that the subport selection would have been an "obvious design choice"

of which LSR performs the bandwidth allocation method. It is therefore my opinion that the choice for the transmitting LSR to make the subport selection would have been an obvious design choice. It is further my opinion that Raz's teachings

IPR2023-00839 – (Min Reply (Ex. 1034), ¶ 36

- But beyond being conclusory, this argument is late, just as a similar "design choice" argument was deemed late in the *Cisco* matter

a LAG." Pet. Resp. 3 (citing Ex. 1021 ¶¶ 15–17) (emphasis added). Among other problems, though, those arguments were not in the Petition; the Petition does not describe modifications of Raz's teachings, much less establish those modifications as a "design choice." See Pet. 25; see also PO

Cisco Systems, Inc. v. Corrigent Corp, IPR2023-00447, Paper 30, at p. 8

IPR2023-00839 – See Sur-Reply, pp. 15-16 & n.3

Steptoe

Ground 1 (RFC 3209 and Raz):

**There Is No Reasonable Expectation
of Success**

Legal Standard

- Obviousness requires Petitioner to establish a reasonable expectation of success, and this requirement is separate and distinct from motivation to modify.
 - *Eli Lilly & Co. v. Teva Pharm. Int'l GmbH*, 8 F.4th 1331, 1344 (Fed. Cir. 2021)

The Petition Makes No Showing for Reasonable Expectation of Success

- The Petition contains no arguments for reasonable expectation of success

87. Based on my review, it is my opinion that Petitioner does not present any argument, much less a persuasive argument, regarding whether a POSA would have had a reasonable expectation of success in modifying RFC 3209 with Raz to meet the claims. I understand that there is no mention of any “reasonable expectation of success” in either the Petition or Dr. Min’s declaration, except for Dr. Min’s discussion of the applicable law. Ex.1003 ¶16.

IPR2023-00839 – Rouskas Decl. (Ex. 2007), ¶ 87

Petitioner's Reply Does Not and Cannot Remedy the Petition's Deficiency

- The Reply does not and cannot remedy the Petition's deficiency regarding reasonable expectation of success

Reply:

The Petition and Petitioner's expert explain why a POSITA would have reasonably expected success in modifying RFC3209 according to Raz. *Eli Lilly & Co. v. Teva Pharm. Int'l GmbH*, 8 F.4th 1331, 1345 (Fed. Cir. 2021) (reasonable expectation of success is about the expectation of success *by a POSITA*). The Petition demonstrates foundational reasoning for the proposed modifications. For example, LAG is compatible with and easily applicable to RFC3209's framework and a POSITA would have been motivated to look to Raz to make such improvements. Pet., 14-15; EX1034, ¶¶39-40. The components of RFC3209 and Raz would be operating as described in their respective documents, at least because both RFC3209 and Raz describe the use of the same devices (LSRs) provisioning the same type of network path (LSP) and using the same labeling protocol (MPLS with RSVP Traffic Engineering extensions) to perform bandwidth reservations. EX1003, ¶91; EX1034, ¶37, 39-40.

IPR2023-00839 – Reply,
pp. 14-15

- The Reply's assertion is generic, not specific to the claims

Steptoe

IPR2023-00839 – See Sur-Reply, pp. 18, 19, 24, 25

There Is No Reasonable Expectation of Success

- There is no reasonable expectation of success, because Raz would be inoperable if modified as Petitioner alleges

Dr. Rouskas:

89. Indeed, in my opinion, a POSA would not have had a reasonable expectation of success of modifying RFC 3209 based on Raz to meet the claims, including because a POSA would not have even had a reasonable expectation of success of somehow modifying Raz's mechanism to apply to communications between two network devices of RFC 3209 to begin with. As I explain in section VIII.B.2 above, Raz's mechanism involves several teachings that are incompatible with communications between network devices, and modifying of Raz to apply to such communications between network devices would render Raz inoperable or

IPR2023-00839 – Rouskas Decl. (Ex. 2007), ¶ 89 (referencing sections VIII.B–C)

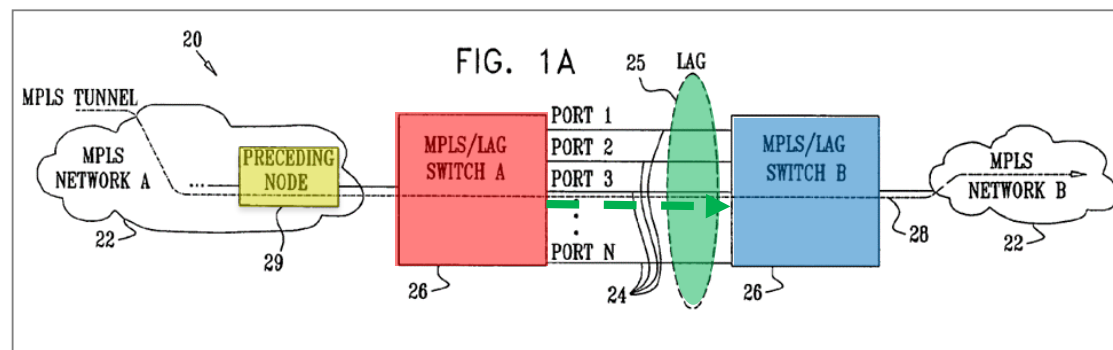
Ground 1 (RFC 3209 and Raz):

**RFC 3209 and Raz Do Not Disclose or
Render Obvious Claim 15's “mapper”**

'602 Patent Claim 15 Requires a “mapper” Configured to Perform Limitations 15.6–15.8

Claim 15:

- 15.5 a mapper, which is configured to:
- 15.6 receive a data packet from an upstream node;
- 15.7 detect said data packet label in said data packet; and
- 15.8 if said data packet contains said data packet label, send said data packet to the second MPLS/LAG switch via said single physical tunnel port.



IPR2023-00839 – '602 Patent (Ex. 1001) at claim 15, Fig. 1A

IPR2023-00839 – See POR, pp. 47-50; Sur-Reply, pp. 19-21

Steptoe

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Petition Fails to Show The Combination of RFC 3209 And Raz Teaches the “Mapper”

Petition’s single paragraph discussion of “mapper” did not identify a mapper within RFC 3209:

RFC 3209 discloses that its intermediate node (LSR) which corresponds to the claimed “first” switch performs the functions of the claimed “mapper,” i.e., receiving a data packet from an upstream node, detecting a data packet label, and determining how to forward the packet in accordance with the label. EX1010, §2.2, §4.1.1.1. RFC 3209 therefore renders obvious that this node (an LSR) comprises the claimed “mapper” which performs these functions. See EX1010, §2.2 (discussing a node updating its “map” of incoming labels to next hop label forwarding entries for evaluating incoming labels on data packets). A POSITA would have understood that intermediate nodes comprise a component which performs these functions and therefore corresponds to the claimed “mapper.” EX1003, ¶¶196-198, 84-91.

??

IPR2023-00839 – Petition, p. 51

Steptoe

IPR2023-00839 – See POR, pp. 47-50; Sur-Reply, pp. 19-21

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DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Raz's Forwarding Module Cannot Be the "mapper"

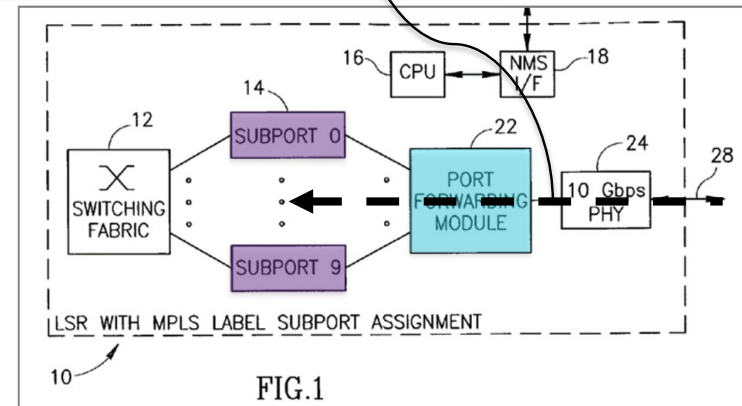
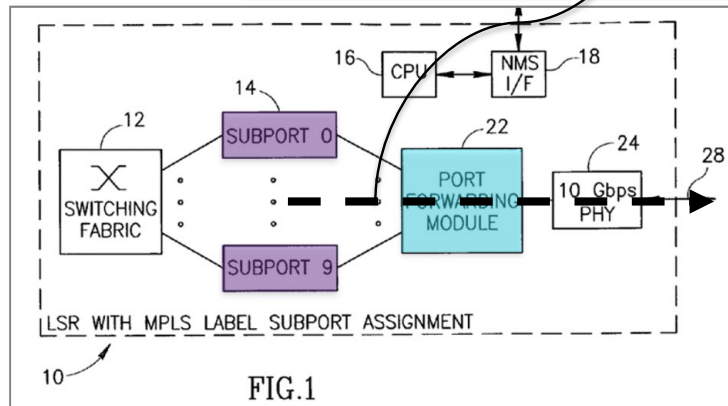
Claim 15:

15.5 a mapper, which is configured to:
15.6 receive a data packet from an upstream node;
15.7 detect said data packet label in said data packet; and
15.8 if said data packet contains said data packet label, send
said data packet to the second MPLS/LAG switch via
said single physical tunnel port.

IPR2023-00839 – '602 Patent (Ex. 1001) at claim 15

Raz:

subports, the subport forwarding module further comprises means for forwarding outbound packets from the subports to the line-interface and for forwarding inbound packets from the line interface to one of the plurality of subports in accordance with the label of each inbound packet.



IPR2023-00839 – Raz (Ex. 1006) at 3:28-32, Fig. 1

IPR2023-00839 – See POR, pp. 47-50; Sur-Reply, pp. 19-21

Steptoe

Petitioner's Reply Advances New Argument

- The Reply contains new argument and evidence regarding Raz's port forwarding module for:
 - limitations 15.5–15.8
 - obviousness
- This should be disregarded

Regarding “mapper,” PO incorrectly takes the Petition’s discussion out of context and ignores expert testimony that a POSITA would have understood the presence of the claimed “mapper” from the disclosures in RFC3209 and alternatively from the disclosures in Raz as applied to RFC3209. PO argues that “an LSR could just as well have multiple separate components” performing the functions, (POR, 48), but again ignores that the Petition presents for Ground 1 a *combination* of RFC3209 with Raz, not both references independently. The Petition states that the combination of RFC3209 with Raz render obvious a mapper, because it would have been obvious for RFC3209's intermediate nodes to contain “a component” corresponding to the claimed “mapper.” Pet., 51. The Petition then cites to the Min Declaration, which states “to the extent not disclosed by RFC3209,” a mapper would have been obvious in view of Raz’s disclosures of a “forwarding module.” EX1003, ¶197. As Petitioner’s expert explained, “the purpose of the mapper is to receive a data packet, detect a data packet label within the data packet, and determine how to

forward the data packet in accordance with the label.” EX1003, ¶197. The Petition explains, in limitations [15.5]-[15.8] and by reference to limitations [1.4] and [1.5], how a component in RFC3209’s LSR performs these functions. Pet., 51-52 (which incorporates analysis on pages 32-36); EX1003, ¶¶196-208 (which incorporates analysis in ¶¶124-134). Raz’s “forwarding module” performs these functions, and

this component would be incorporated into RFC3209’s LSR according to the modifications to RFC3209 that are proposed by the Petition. EX1006, 7:39-45 (“[t]he port forwarding module in LSR B examines the label in the received packet and in response thereto forwards the packet to subport 3”). Whether the disclosure of the claimed “mapper” and its functions comes from Raz or RFC3209, the Petition argues that it would have been obvious to a POSITA for *RFC3209*’s LSRs to contain a “mapper.” EX1003, ¶¶196-208.

IPR2023-00839 – Reply, pp. 18-19

IPR2023-00839 – See POR, pp. 47-50; Sur-Reply, pp. 19-21

Steptoe

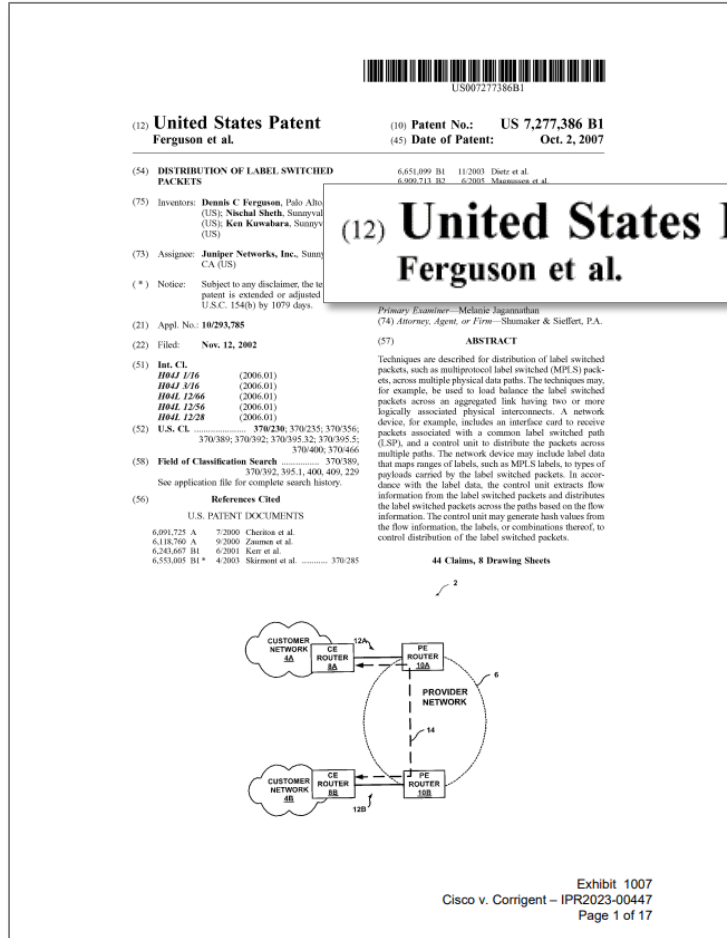
Ground 2 (RFC 3209, Raz and Ferguson):

Overview of Ground 2

Ground 2 (RFC 3209, Raz and Ferguson):

- *Roadmap for Ground 2*
 - Ground 2 Relates to Raz and Ferguson, Not RFC 3209
 - POSA would not modify RFC 3209 based on Raz and Ferguson
 - There is no motivation to modify RFC 3209 with Raz and Ferguson
 - There is no reasonable expectation of success
 - Ground 2 does not cure the problems with Ground 1

Ferguson



(12) United States Patent Ferguson et al.

(10) Patent No.: US 7,277,386 B1
(45) Date of Patent: Oct. 2, 2007

(54) DISTRIBUTION OF LABEL SWITCHED PACKETS

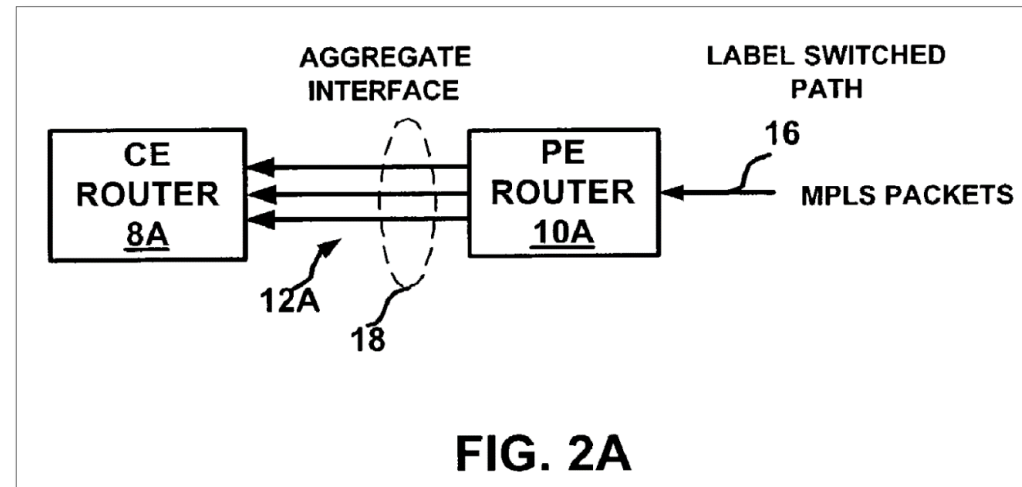
(75) Inventors: **Dennis C Ferguson**, Palo Alto, CA (US); **Nischal Sheth**, Sunnyvale, CA (US); **Ken Kuwabara**, Sunnyvale, CA (US)

(73) Assignee: **Juniper Networks, Inc.**, Sunnyvale, CA (US)

IPR2023-00839 – Ferguson (Ex. 1007), p. 1

Steptoe

Ferguson



IPR2023-00839 – Ferguson (Ex. 1007) at Fig. 2A

Petition:

Ferguson discloses the utilization of an Ethernet physical data port in a LAG in an MPLS network for the purpose of communicating high-speed packet streams. EX1007, 1:21-26, 1:43-53, 3:36-4:19, 6:10-31, Figures 2A-2C. As shown below in Figures 2A-2C of Ferguson, MPLS packets are communicated along a physical interconnect that is part of an “aggregate interface” (i.e., a LAG) between ports on two routers:

IPR2023-00839 – Petition, p. 57

IPR2023-00839 – See POR, pp. 51-68; Sur-Reply, pp. 21-25

Steptoe

Ground 2 (RFC 3209, Raz and Ferguson):

Ground 2 Relates to Raz and Ferguson, Not RFC 3209

Ground 2 Relates to Raz and Ferguson, Not RFC 3209

Ground 2 includes *no discussion* regarding RFC 3209

150. Based on my review, I understand that Ground 2 includes **no discussion** regarding the specific teachings of primary reference RFC 3209 or any modifications thereof to meet the claims. In my opinion, Ground 2 fails to

Claims 1, 15 and 26 – For independent Claims 1, 15 and 26, Ferguson builds on the previous analysis of Raz by disclosing a system for communicating packets between switches and routers in an MPLS network that addresses the same concerns about allocating the bandwidth of physical data ports in a LAG to deal with the demands of communicating high-speed packet streams as are addressed

IPR2023-00839 – EX. 2007, p. 150

Cisco Systems, Inc. v. Corrigent Corp.,
IPR2023-00447 – Petition, p. 52-53

Ground 2 is *exclusively about modifying Raz based on Ferguson*, and copied almost word-for-word from the petition in IPR2023-00447

Ferguson builds on the previous analysis of RFC 3209 and Raz by disclosing a system for communicating packets between switches and routers in an MPLS network that addresses the same concerns about allocating the bandwidth of physical data ports in a LAG to deal with the demands of communicating high-speed packet streams as are addressed by RFC 3209 and Raz. EX1003, ¶¶249-250. Ferguson

IPR2023-00839 –Petition, pp. 56-57

IPR2023-00839 – See POR, pp. 51-68; Sur-Reply, pp. 21-25

Steptoe

Ground 2 (RFC 3209, Raz and Ferguson):

POSA Would Not Modify Raz by Ferguson

Raz's Mechanism Is Specifically for Inside an LSR and Teaches Away From External Use

Further, it is intended that the mechanism of the present invention be implemented in network devices such as routers (e.g., LSRs in MPLS networks) making up the nodes in a network and include edge nodes and intermediate nodes. It is

BACKGROUND OF THE INVENTION

capable of handling large and larger amounts of traffic. A problem arises, however, when the aggregate link speeds exceed the capacity of the internal circuits used to process the inbound and outbound packet streams. For example, consider

There is thus a need for 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. The mechanism should be

SUMMARY OF THE INVENTION

The present invention provides a link multiplexing mechanism utilizing path oriented forwarding. The mechanism comprises 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. To provide the flexibility

ABSTRACT

A subport forwarding and provisioning mechanism whereby a plurality of subports implemented using slower speed processors are used to perform the packet processing for a higher speed packet stream. Outbound packets are assigned a sub-

DETAILED DESCRIPTION OF THE INVENTION

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. To pro-

IPR2023-00839 – Raz (Ex. 1006) at 6:51-54, 1:43-46, 1:56-59, 1:65-2:3, Abstract, 6:24-27

IPR2023-00839– See POR, pp. 53-58; Sur-Reply, pp. 21-23

Steptoe

Ferguson's Relied-Upon Disclosure Does Not Motivate a POSA to Apply Raz Between LSRs

Petition:

A POSITA would have understood from the disclosures in Ferguson that techniques for utilizing an Ethernet physical data port in a LAG to communicate data packets between routers or switches in an MPLS network are also applicable to the use of subports transmitting the data packets within the routers or switches, and vice versa. EX1003, ¶246; EX1007, 5:61-6:6. Armed with this understanding, a

Ferguson:

IPR2023-00839 – Petition, p. 55-56

- This relied-upon disclosure from Ferguson:
 - 1) is specific to Ferguson's techniques, **not applicable to Raz**
 - 2) teaches that its external techniques may be applied within a router, **not vice versa**

In this manner, the devices of system 2 make use of the allocated ranges of MPLS labels to control the distribution of MPLS packets across multiple physical paths. Although the techniques have been described in reference to distribution of MPLS packets across parallel physical interconnects of an aggregated link, the techniques may be applied in a variety of environments. For example, the techniques may be readily applied to internal parallel data paths within a device. For example, the techniques may be used by a router to distribute packets across internal data paths that begin at the same input interface of the router and end at the same output interface of the router, but traverse through different internal, high-speed switch fabrics. A control unit for the

IPR2023-00839 – Ferguson (Ex. 1007) at 5:61-6:6

IPR2023-00839– See POR, pp. 53-58; Sur-Reply, pp. 21-23

Steptoe

Ferguson's Relied-Upon Disclosure Does Not Motivate a POSA to Apply Raz Between LSRs

- Petitioner and its expert recognize that Ferguson's relied-upon disclosure:
 - (1) is about Ferguson's own techniques
 - (2) teaches that Ferguson's external techniques may be applied within a device

Petition:

switches in an MPLS network. EX1007, 5:61-6:6. Ferguson states that “[a]lthough [its] techniques have been described in reference to distribution of MPLS packets across parallel physical interconnects of an aggregated link, the techniques may be applied in a variety of environments.” EX1007, 5:63-67. “For example, the techniques may be readily applied to internal parallel data paths within a device.”

IPR2023-00839 – Petition, p. 59

according to the quoted portions from Ferguson, you say that Ferguson techniques have been described in reference to these parallel physical interconnects, but those techniques could be readily applied to internal parallel data paths within a device; is that right?

Dr. Min:

A. Yeah, that's what it says.

IPR2023-00839 – Min Dep. (Ex. 2013) at 48:25-49:11

IPR2023-00839– See POR, pp. 53-58; Sur-Reply, pp. 21-23

Steptoe

Ferguson's Relied-Upon Disclosure Does Not Motivate a POSA to Apply Raz Between LSRs

- Petitioner's Reply ignores Raz's mechanism and responds by citing conclusory paragraphs of its expert's new Reply Declaration that does not clarify why or how

Reply:

Ferguson. The Petition is arguing for modifying RFC3209 to incorporate the beneficial teachings of both Raz and Ferguson. Pet., 53-60; EX1003, ¶¶246, 250-51; see also EX1034, ¶¶45-55.

IPR2023-00839 – Reply, p. 20

New Reply Declaration:

analysis. See, e.g., EX1003, ¶¶ 246, 262, 293. A POSITA would have been motivated to apply the teachings of Raz and Ferguson to RFC 3209 to arrive at the claimed inventions of the '602 Patent. EX1003, ¶¶ 243 – 246.

IPR2023-00839 – Min Reply Decl. (Ex. 1034), ¶ 45

RFC 3209, Raz and Ferguson Address Different Problems

- Raz's problem is how to handle a high-speed link with slow-speed processors within an LSR

Raz:

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**. To pro-

IPR2023-00839 –
Raz (Ex. 1006) at
6:24-27

- Ferguson is about distributing packets across multiple paths or interconnects (e.g., for load balancing), which assumes that the routers have sufficient processing capacity, so Raz's problem is not an issue

Ferguson:

Techniques are described for distribution of label switched packets, such as multiprotocol label switched (MPLS) packets, across multiple physical data paths. The techniques may, for example, be used to **load balance** the label switched packets across an **aggregated link** having two or more logically associated physical interconnects. A network

IPR2023-00839 –
Ferguson (Ex. 1007)
at 1:57-63

- In fact, Ferguson discloses routers with “high-speed” components

Ferguson:

internal **high-speed** switching components

internal, **high-speed** switch fabrics

IPR2023-00839 –
Ferguson (Ex. 1007)
at 2:51-52, 6:6

IPR2023-00839– See POR, pp. 53-58; Sur-Reply, pp. 21-23

Steptoe

Raz and Ferguson Use Different Methods

- Raz and Ferguson teach different methods regarding how to handle LSPs

methods. A POSA would have understood that 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. But a POSA would have understood that Raz's provisioning mechanism, in contrast, 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,

IPR2023-00839 – Rouskas Decl. (Ex. 2007), ¶ 159

- Raz and Ferguson also teach different methods regarding label provisioning

the different methods of Ferguson and Raz regarding packet labels. A POSA would have understood that, as I explain for Ground 1, Raz emphasizes that its subport assignment and label generation comes from downstream, as Raz teaches that a receiving LSR selects a subport, generates a label indicating that subport, and sends that label to an upstream device. Ex.1006 at 7:26-38, 8:52-55, 9:41-58. teachings. A POSA would have understood that 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,

IPR2023-00839 – Rouskas Decl. (Ex. 2007), ¶ 160

IPR2023-00839– See POR, pp. 53-58; Sur-Reply, pp. 21-23

Steptoe

Ground 2 (RFC 3209, Raz and Ferguson):

**There Is No Motivation to Modify Raz
Based on Ferguson to Arrive at the
'602 Patent's Invention**

Legal Standard

- 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, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d at 1327-28 *Fed. Cir. 2012)

The Petition Fails to Explain *Why* or *How* Raz Would Be Modified Based on Ferguson to Meet All Claim Limitations

- The Petition's analysis is not specific to the claim limitations

X. GROUND 2: CLAIMS 1-26 ARE UNPATENTABLE AS OBVIOUS OVER THE COMBINATION OF RFC 3209, RAZ, FERGUSON AND THE KNOWLEDGE OF A POSITA.

The combination of RFC 3209, Raz, and Ferguson, along with the knowledge of a POSITA, renders Claims 1-26 obvious. The analysis of the obviousness of Claims 1-26 set forth in Ground 1 are incorporated by reference. *See* §IX; EX1003, ¶¶83-241.

A. Motivation to Combine RFC 3209, Raz, and Ferguson

B. Claims 1, 15, and 26

IPR2023-00839 – Petition, pp. 53, 56

IPR2023-00839 – See POR, p. 59

Steptoe

-76- DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Arista v. Corrigent - IPR2023-00839
Patent Owner Corrigent Exhibit 2017-0076

The Petition Fails to Explain *Why* or *How* Raz Would Be Modified Based on Ferguson to Meet All Claim Limitations

- The Petition merely argues that a POSA could have applied Raz's internal techniques to communications between LSRs based on Ferguson, without addressing Raz's specific teachings, much less explaining (i) specifically *why* or *how* this modification would be done or (ii) how it would meet all claim limitations

streams as are addressed by RFC 3209 and Raz. EX1003, ¶¶249-250. Ferguson teaches a POSITA that the method of assigning a subport with appropriate bandwidth that is disclosed in Raz could also be implemented *between* MPLS/LAG switches in an MPLS network. EX1003, ¶¶250-251. That is, to the extent that it was not already obvious from the combination of RFC 3209 and Raz, a POSITA reviewing Ferguson would have understood that it would be desirable to implement the techniques in Raz for assigning a physical tunnel subport to assign a physical tunnel port to communicate packets along “physical interconnects” between “two switches” in an MPLS network according to the framework provided by RFC 3209. EX1007, 1:22-27, 1:57-66; EX1003, ¶250. The teachings of Ferguson are

versa. EX1003, ¶246; EX1007, 5:61-6:6. Armed with this understanding, a POSITA would have understood that the techniques disclosed in Raz for using subports to transmit data packets within a router or switch would also have been applicable to an Ethernet physical data port in a LAG that communicates data packets between routers or switches in an MPLS network. EX1003, ¶246. As such,

IPR2023-00839 – Petition, pp. 55, 56

IPR2023-00839 – See POR, pp. 59-66

Steptoe

-77- DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Petition Fails to Explain *Why* or *How* Raz Would Be Modified Based on Ferguson to Meet All Claim Limitations

- The Board had similar concerns in the prior proceeding, and here the record is worse for Arista on Ground 2

Pet. 52; *see* Pet. 52–55. Critically, though, Petitioner does not specifically explain how the combined teachings of Raz and Ferguson would satisfy individual claim elements. Among other problems with Petitioner’s proposed combination, Petitioner does not adequately explain how or why a person of ordinary skill would have combined the references to include the claimed port assignment and packet labeling for transmission of a packet from a preceding node and then between a first and second MPLS switch. *See* Pet. 56–59.

Cisco Systems, Inc. v. Corrigent Corp, IPR2023-00447, Paper 30, at p. 11

Ferguson's Relied-Upon Disclosure Does Not Motivate a POSA to Apply Raz Between LSRs

Petition:

A POSITA would have understood from the disclosures in Ferguson that techniques for utilizing an Ethernet physical data port in a LAG to communicate data packets between routers or switches in an MPLS network are also applicable to the use of subports transmitting the data packets within the routers or switches, and **vice versa**. EX1003, ¶246; EX1007, 5:61-6:6. Armed with this understanding, a

IPR2023-00839 – Petition, p. 55, 56

Ferguson:

In this manner, the devices of system 2 make use of the allocated ranges of MPLS labels to control the distribution of MPLS packets across multiple physical paths. **Although the techniques have been described in reference to** distribution of MPLS packets across **parallel physical interconnects of an aggregated link**, the techniques may be applied in a variety of environments. For example, **the techniques may be readily applied** to internal parallel data paths **within a device**. For example, the techniques may be used by a router to distribute packets across internal data paths that begin at the same input interface of the router and end at the same output interface of the router, but traverse through different internal, high-speed switch fabrics. A control unit for the

IPR2023-00839 – Ferguson (Ex. 1007) at 5:61-6:6

- This relied-upon disclosure from Ferguson:
 - 1) is specific to Ferguson's techniques, **not applicable to Raz**
 - 2) teaches that its **external** techniques may be applied **within** a router, **not vice versa**

IPR2023-00839 – See POR, pp. 54, 61-65; Sur-Reply, p. 22

Steptoe

The Reply's Pivot to Bandwidth Fails to Establish Motivation

- Petitioner's Reply pivots to the issue of bandwidth

Reply:

¶¶242-46, 250-52). PO asserts that Ferguson and Raz (ignoring RFC3209) “address different problems” and “use fundamentally different methods.” POR, 55. But as explained in the Petition, all three references are directed to solving the problem of ensuring enough **bandwidth** is available to communicate high-speed packet streams through an MPLS network. Pet., 53-56. Raz and Ferguson additionally share similarities that would motivate a POSITA to apply their disclosures to RFC3209. For example, Ferguson, like Raz, focuses on improving the use of **bandwidth** when using a LAG in an MPLS network. Pet., 55-56; EX1003, ¶¶243-46. Further, like

IPR2023-00839 – Reply, pp. 20

- But Petitioner mischaracterizes Raz, which concerns allocating bandwidth of **processors within** an LSR, not **links between** LSRs

– This is shown by:

Raz:

The invention provides a scheme for **allocating LSP bandwidth to supports** that helps in solving the problem described

IPR2023-00839 – Raz (Ex. 1006) at 11:3-4

Petition:

Raz discusses allocating the bandwidth of supports within an LSR

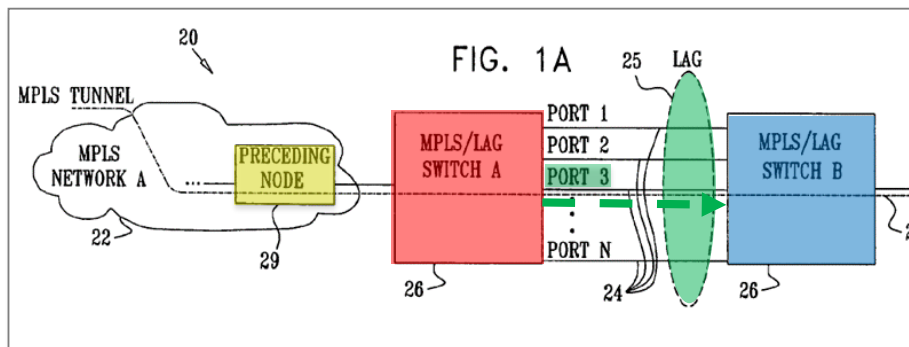
IPR2023-00839 – Petition, p. 54

IPR2023-00839 – See POR, pp. 60, 61; Sur-Reply, pp. 23-24

Steptoe

The Reply's Pivot to Bandwidth Fails to Establish Motivation

- Petitioner's generic references to "bandwidth" do not establish motivation
 - *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327-28 (Fed. Cir. 2012) (finding alleged motivation "insufficient" where it "is generic and bears no relation to any specific combination of prior art elements" and "also fails to explain why a [POSA] would have combined elements from specific references *in the way the claimed invention does*" (emphasis in original))



What is claimed is:

1. A method for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network, the method comprising the steps of:

assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG to a network tunnel, wherein the single physical tunnel port of the LAG meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port of the LAG has a port serial number;

dedicating a sub-set of bits in a data packet label prepared by the first MPLS/LAG switch to encode said port serial number of said single physical tunnel port of the LAG into the data packet label;

sending, by said first MPLS/LAG switch, the data packet label, in which said port serial number of said single physical tunnel port is encoded, to a preceding node;

receiving from the preceding node, by said first MPLS/LAG switch, a data packet comprising said data packet label, in which said port serial number of said single physical tunnel port is encoded; and

sending said data packet from said first MPLS/LAG switch to a second MPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label.

IPR2023-00839 – '602 Patent (Ex. 1001) at Fig. 1A, claim 1

Ground 2 (RFC 3209, Raz and Ferguson):

There Is No Reasonable Expectation of Success

Legal Standard

- Obviousness requires Petitioner to establish a reasonable expectation of success, and this requirement is separate and distinct from motivation to modify.
 - *Eli Lilly & Co. v. Teva Pharm. Int'l GmbH*, 8 F.4th 1331, 1344 (Fed. Cir. 2021)

The Petition Makes No Showing for Reasonable Expectation of Success

- The Petition contains **no arguments** for reasonable expectation of success

182. Based on my review, it is my opinion that Petitioner does not present any argument, much less a persuasive argument, regarding whether a POSA would have had a reasonable expectation of success in modifying RFC 3209 and Raz based on Ferguson (specifically, modifying Raz based on Ferguson and then combining that modified version of Raz with RFC 3209) to meet the claims. I understand that there is no mention of any “reasonable expectation of success” in either the Petition or Dr. Min’s declaration, except for Dr. Min’s discussion of the applicable law. Ex.1003 ¶16.

IPR2023-00839 – Rouskas Decl. (Ex. 2007), ¶ 182

No Discussion of Reasonable Expectation of Success in Ground 2 In the Reply

- The Reply does have any discussion of reasonable expectation of success in the context of Ground 2
- Petitioner's expert attempted to address the issue in the Reply Declaration without putting forward any evidence to demonstrate how the proposed combination of the references would work together.

47. The nature and substance of these references would motivate a POSITA to combine them and would also suggest to a POSITA that there would be a reasonable likelihood that such a combination would be successful. It is my understanding that the reasonable expectation of success may be implied and the words 'reasonable expectation of success' do not need to be explicitly recited to communicate an opinion regarding a reasonable expectation of success. My first declaration in providing the motivations to combine RFC 3209, Raz and Ferguson for Ground 2, also indicated the reasons why a POSITA would reasonably expect the combination to be successful.

IPR2023-00839 – Min Reply Decl. (Ex. 1034), ¶ 47

There Is No Reasonable Expectation of Success

- There is no reasonable expectation of success, because Raz would be inoperable if modified as Petitioner alleges

Dr. Rouskas:

183. Indeed, in my opinion, a POSA would not have had a reasonable expectation of success of modifying Raz's method based on Ferguson as alleged, as a POSA would not have had a reasonable expectation of success of somehow applying Raz' method to communications between two network devices (such as the claimed MPLS/LAG switches) to begin with, even in view of Ferguson. As I explain in section VIII.B.2 above, for example, a POSA would have understood that Raz's method involves several teachings that are incompatible with communications between network devices, and modifying Raz to apply to such communications between network devices would render Raz inoperable or unsatisfactory for its intended purpose. A POSA would have understood that

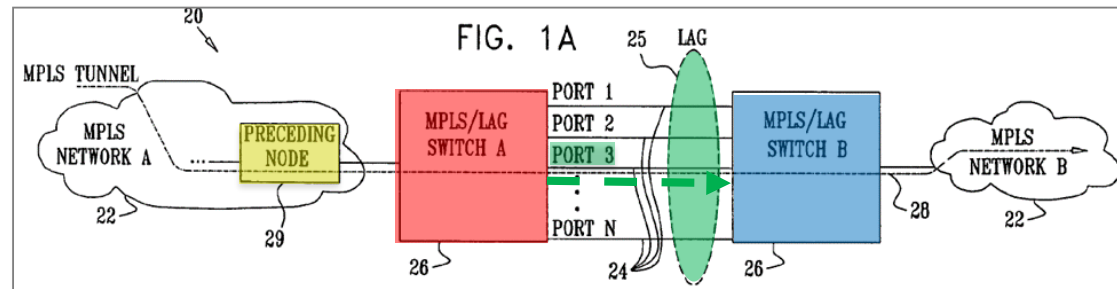
IPR2023-00839 – Rouskas Decl. (Ex. 2007), ¶ 183 (referencing sections VIII.B)

Ground 2 (RFC 3209, Raz and Ferguson):

Ground 2 Does Not Cure the Problems With Ground 1

The Claims Are Not Rendered Obvious Even If Raz Is Modified Based on Ferguson

- Even if Raz is applied to communications between LSRs based on Ferguson, Ground 2 still fails for reasons discussed for Ground 1:
 - Ground 2 still fails to explain how LAG would be implemented between nodes
 - Ground 2 still fails to meet limitation 1.5 (i.e., sending via a single physical tunnel port that is assigned and labeled by the first switch)



- Ground 2 still fails to meet claim 15, as it does not address Raz's forwarding module or limitations 15.5–15.8

a mapper, which is configured to:

receive a data packet from an upstream node;
detect said data packet label in said data packet; and
if said data packet contains said data packet label, send
said data packet to the second MPLS/LAG switch via
said single physical tunnel port.

IPR2023-00839 –
'602 Patent (Ex.
1001) at Fig. 1A,
claim 15

Summary

- *Ground 1 – Raz*
 - Raz fails to disclose or render obvious:
 - The claimed LAG
 - a first switch assigning a single physical tunnel port for *sending* to a second switch, via a preceding node
 - POSA would not and could not apply Raz between MPLS/LAG switches, let alone modify Raz to arrive at the claimed invention
 - There is no reasonable expectation of success
 - Claim 15’s “mapper” is not satisfied
- *Ground 2 – Raz in view of Ferguson*
 - POSA would not modify Raz based on Ferguson
 - There is no reasonable expectation of success
 - Ground 2 does not cure the problems with Ground 1
- *Recurring Problems with Petitioner’s Reply*
 - New Reply arguments and evidence
 - No explanations of alleged combinations