

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
v.
CORRIGENT CORPORATION,
Patent Owner.

IPR2023-00447
Patent 9,118,602 B2

Before KRISTEN L. DROESCH, NATHAN A. ENGELS, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

ENGELS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Petitioner Cisco Systems, Inc. filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–26 of U.S. Patent No. 9,118,602 B2 (Ex. 1001, “the ’602 patent”). Patent Owner Corrigent Corporation filed a Preliminary Response. Paper 6.

We issued a Decision Granting Institution of *Inter Partes* Review. Paper 8. Subsequently, Patent Owner filed Patent Owner’s Response (Paper 14, “PO Resp.”), Petitioner filed Petitioner’s Reply to Patent Owner’s Response (Paper 21, “Pet. Reply”), and Patent Owner filed Patent Owner’s Sur-Reply (Paper 25, “PO Sur-reply”). The parties presented oral arguments, and a transcript of the hearing is included in the record. Paper 29.

A. *Real Parties in Interest*

Petitioner identifies itself as the sole real party in interest. Pet. 65. Patent Owner identifies itself as the sole real party in interest. Paper 4, 2.

B. *Related Matters*

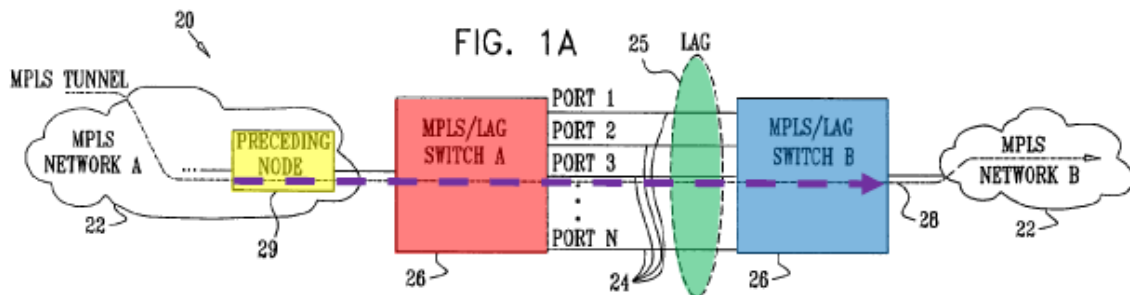
The parties state that the ’602 patent is involved in the following district court cases: *Corrigent Corp. v. Cisco Systems, Inc.*, No. 6:22-cv-396 (W.D. Tex.), and *Corrigent Corp. v. Arista Networks, Inc.*, No. 1:22-cv-497 (D. Del.). Pet. 65; Paper 4, 2; Paper 16, 2. Patent Owner states that the ’602 patent also is the subject of *Arista Networks, Inc. v. Corrigent Corp.*, IPR2023-00839 (PTAB). Paper 16, 2.

C. *The ’602 Patent*

Titled “Tunnel Provisioning with Link Aggregation,” the ’602 patent describes Multiprotocol Label Switching (“MPLS”) in which data packets are communicated over a network that includes label-switching routers

(“LSRs”). Ex. 1001, 1:25–40. The ’602 patent states that “[t]he flow of packets along a label-switched path [(“LSP”)] under MPLS is completely specified by the label applied at the ingress node of the path. Therefore, an LSP can be viewed as a tunnel through the network.” Ex. 1001, 1:40–43. Further, the ’602 patent states that link aggregation (“LAG”) “is a technique by which a group of physical links between two endpoints in a data network can be joined together into a single logical link (referred to as a ‘LAG group’).” Ex. 1001, 2:2–5.

The challenged claims recite, among other things, a “first MPLS/LAG switch,” a “preceding node,” and a “second MPLS/LAG switch.” Patent Owner’s annotated version of Figure 1A of the ’602 patent, copied below, depicts those structures arranged in an exemplary embodiment.



PO Resp. 7.

The annotated version of Figure 1 depicts a first MPLS/LAG Switch A (red) and a second MPLS/LAG Switch B (blue) with a LAG (green) between the two switches, and the ’602 patent describes that data packets are transmitted along an MPLS tunnel (dashed purple line) from a preceding node (yellow) to the first MPLS/LAG Switch A via assigned Port 3 of the LAG to the second MPLS/LAG Switch B. Ex. 1001, 3:58–4:34, Fig. 1.

D. Illustrative Claim

Of the challenged claims, claims 1, 15, and 26 are independent. Claim 1 is copied below with bracketed labels added to reflect those referenced in the parties' briefs.

[1.0] 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 MSPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label.

E. Alleged Grounds of Unpatentability

Petitioner asserts that claims 1–26 would have been unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–13, 15–24, 26	103 ¹	Raz ²
1–26	103	Raz, Ferguson ³

Pet. 5. Petitioner also supports its challenge with a Declaration of Samrat Bhattacharjee, Ph.D. (Ex. 1004) and a Reply Declaration of Samrat Bhattacharjee, Ph.D. (Ex. 1021). Patent Owner submits a Declaration of George N. Rouskas, Ph.D. (Ex. 2007).

II. ANALYSIS

A. Level of Ordinary Skill in the Art

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner contends a person of ordinary skill in the art at the time of the invention would have had “a bachelor’s degree in computer science, computer engineering or an equivalent, as well as two years of professional experience” and “a working knowledge of hardware and software for

¹ The ’602 patent was filed after the Leahy-Smith America Invents Act (“AIA”) revisions to 35 U.S.C. § 103 became effective. Therefore, we apply the AIA version of § 103; however, our analysis would be the same under the pre-AIA version of the statute.

² US 7,466,697 B1; filed July 23, 2002. Ex. 1006.

³ US 6,545,979 B1; filed Nov. 12, 2002. Ex. 1007.

packet-switched networking, MPLS and LAG.” Pet. 6 (citing Ex. 1004 ¶¶ 57–58). Petitioner also states that a lack of work experience can be remedied by additional education, and vice versa. Pet. 6 (citing Ex. 1004 ¶ 57). Patent Owner “uses the same definition.” PO Resp. 4.

We apply Petitioner’s level of ordinary skill, which is undisputed and is consistent with the level reflected by the ’602 patent and the asserted prior art.

B. Claim Construction

We construe claims using the principles set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc) and related cases. *See* 37 C.F.R. § 42.100(b) (2022). Under that precedent, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips*, 415 F.3d at 1312–13.

Neither party proposes any express claim constructions. Pet. 6–7; *see* PO Resp. 4. To the extent that the parties dispute the meaning of certain claim terms, we address those issues below, but we determine it is unnecessary to expressly construe any terms. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Ground 1

Petitioner contends Raz teaches the communication of packets in an MPLS network using link aggregation to transport high-speed network

traffic within an LSR of the MPLS network. Pet. 13. According to Petitioner, Raz teaches that individual packets from a high-speed data stream are assigned to one of a plurality of subports for transportation through the LSR and then re-aggregated into the high-speed packet stream before being forwarded to the next node in a network such as the next LSR. Pet. 13–14 (citing Ex. 1006, 2:41–67, 6:34–45, Fig. 1), 25.

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).

Addressing claim element [1.5], Petitioner states “Raz discloses sending a data packet from a first MPLS/LAG switch to a second MPLS/LAG switch via a single physical tunnel port having the port serial number encoded in the data packet label.” Pet. 25 (citing Ex. 1004 ¶ 107). “For example,” according to Petitioner, “LSR B in the example described in Column 7 of Raz is the LSR that generates the data packet label in which the port serial number (e.g., subport 3) is encoded, and it corresponds to the claimed first MPLS/LAG switch.” Pet. 25 (citing Ex. 1006, 7:17–29; Ex. 1004 ¶ 107). Petitioner argues a person of ordinary skill “would have understood that the data packet in LSR B could be sent to another LSR (which would correspond to the claimed second MPLS/LAG switch) via physical tunnel subport (subport 3) having the port serial number encoded in the data packet label.” Pet. 25 (citing Ex. 1006, 7:17–29, 7:39–45, 9:29–58, 14:23–26, Figs. 3–4; Ex. 1004 ¶ 107). Further, Petitioner states “it would have been within the knowledge of a [person of ordinary skill in the art] to

communicate packets from a first MPLS/LAG switch to a second MPLS/LAG switch in an MPLS network in the same way as packets communicated from one LSR to another in Raz. Pet. 25 (citing Ex. 1004 ¶ 108).

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 argues that LAGs were well known and, “[w]hile PO argues that Raz teaches the use of a single high-speed link to communicate between LSRs, that is merely a design choice.” Pet. Reply 3 (citing Ex. 1021 ¶¶ 15–17; PO Resp. 8–9). Further, Petitioner argues “[i]t would have been obvious to a [person of ordinary skill in the art] that high-speed packet streams *could be* communicated between switches or routers through a physical tunnel port of 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 Sur-reply 3.

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.

Additionally, where Raz describes communication between two LSRs, Petitioner acknowledges that Raz teaches that its cited second LSR assigns the port on which it will receive a data packet. Pet. Reply 4; Ex. 1021 ¶ 20 (“in Raz, the second LSR chooses the subport that will be used to transmit the data packet from the first LSR and receive the data packet at the second LSR”). According to Petitioner, Raz teaches that “a first LSR generates a data packet label in which a port serial number is encoded and sends the label to a preceding LSR. Subsequently, the preceding LSR sends a data packet to the proper subport for processing. The process is then repeated in sending the data packet from the first LSR to a second LSR.” Pet. Reply 4 (citations omitted). “This technique *just as easily could have been implemented* to identify a single physical tunnel port through which a data packet in a first router or switch would be communicated to a second router or switch via a LAG.” Pet. Reply 4 (emphasis added) (citing Ex. 1006, 2:23–25, 7:7–16, 7:22–26, 11:3–29, Fig. 5; Ex. 1021 ¶ 18). Again, these arguments 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.

Petitioner also argues, for the first time in the Reply, that “[t]he claims do not require that the first switch *assign* the single physical tunnel port to be used to send a data packet to the second switch.” Pet. Reply 5 (citing Ex. 1021 ¶ 19). Petitioner offers no actual analysis of the claim language or intrinsic evidence, relying instead on conclusory testimony of Dr. Bhattacharjee. Regardless, we find Petitioner’s argument inconsistent with the plain language of claim elements [1.1]–[1.5] and therefore unpersuasive.

For these reasons, based on the complete record, we determine that Petitioner has not proven by a preponderance of the evidence that claim 1 is unpatentable in view of Raz. With respect to independent claims 15 and 26, Petitioner relies on arguments and evidence substantively similar to that addressed above, contending that certain elements of claim 15 cover “substantially the same subject matter” as elements discussed above regarding claim 1 (*see* Pet. 45, 46) and that claim 26 “is substantially similar to” claim 1 (Pet. 49), and, for the same reasons, we determine Petitioner has not proven by a preponderance of the evidence that claims 15 and 26 are unpatentable in view of Raz. Further, for the same reasons, we determine Petitioner has not proven by a preponderance of the evidence that dependent claims 2–13 and 16–24 are unpatentable in view of Raz.

D. Ground 2

The Petition asserts that claims 1–26 would have been obvious in view of the combined teachings of Raz and Ferguson, stating “[w]ith respect to Raz, Petitioner incorporates by reference the analysis of obviousness of

[c]laims 1–13, 15–24 and 26 set forth above in Ground 1.” Pet. 52. Further, Petitioner states that “[f]or independent [c]laims 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.” 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.

Instead, Petitioner generally advocates for the combination of Raz and Ferguson, arguing for example that “both Raz and Ferguson are directed to solving the problem of ensuring enough bandwidth is available to communicate high-speed packet streams through an MPLS network.” Pet. 57 (citing Ex. 1006, 10:60–11:12, 14:33–41, 15:47–55, 17:1–9, Fig. 5; Ex. 1007, 1:28–42, 2:54–57, 4:55–60; Ex. 1004 ¶¶ 247–249). Further, Petitioner contends a person of ordinary skill “would have understood from the disclosures in Ferguson that techniques for utilizing an Ethernet physical data port in a LAG to communication 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.” Pet. 59 (citing Ex. 1004 ¶ 250; Ex. 1007, 5:61–6:6); *see* Pet. 56–59; Pet. Reply 20. But Petitioner does not adequately explain how the proposed combination of Raz and Ferguson would cure the deficiencies addressed

above in Petitioner's analysis of Raz for Ground 1. Among other problems, none of Petitioner's arguments adequately address port assignment and labeling in the proposed combination, much less adequately explain why the proposed combination would satisfy the challenged claims. *See* Pet. 55–56.

As Petitioner does not adequately explain how the teachings of Raz and Ferguson might be combined to cure the deficiencies addressed above, we additionally determine Petitioner's arguments and evidence advanced for the combination of Raz and Ferguson do not establish obviousness by a preponderance of the evidence for any of claims 1–26.

III. CONCLUSION

For the reasons set forth above, we determine that Petitioner has not proven by a preponderance of the evidence that any of claims 1–26 of the '602 patent are unpatentable.

In summary:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–13, 15–24, 26	103	Raz		1–13, 15–24, 26
1–26	103	Raz, Ferguson		1–26
Overall Outcome				1–26

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–26 have not been proven by a preponderance of the evidence to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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