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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

PORTSMOUTH NETWORK CORP.,
Patent Owner.

IPR2024-00954
Patent 8,199,637 B2

Before STACEY G. WHITE, CHARLES J. BOUDREAU, and PETER D. SHAPIRO, *Administrative Patent Judges.*

WHITE, *Administrative Patent Judge.*

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

I. INTRODUCTION

Cisco Systems, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–25 of U.S. Patent No. 8,199,637 B2 (Ex. 1001, “the ’637 patent”). Paper 2 (“Pet.”). Portsmouth Network Corp. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons stated below, we determine that Petitioner has not established a reasonable likelihood that it would prevail with respect to at least one claim. We, therefore, deny Petitioner’s request to institute *inter partes* review.

A. Related Matter

The parties identify *Portsmouth Network Corp. v. Cisco Systems, Inc.*, No. 2:23-cv-00441 (E.D. Tex.), as a related court case. Pet. 1; Paper 3, 2.

B. The ’637 Patent

The ’637 patent is titled “VPLS Remote Failure Indication” and it “relates generally to communication networks, and particularly to methods and systems for providing virtual private LAN services (VPLS).” Ex. 1001, code (54), 1:17–19. The ’637 patent describes a multipoint-to-multipoint (MP-MP) network communication service for multiple endpoints in a network using two alternative topologies, i.e., two alternative sets of network links. *Id.* at 3:56–60. A set of links is associated with a particular instance of the MP-MP communication service and acts as the primary set. *Id.* at 3:60–61. The other set serves as the backup and is associated with a different service instance. *Id.* at 3:61–62.

Initially, the MP-MP network communication service is provided over the primary set of links and the associated network service instance. *Id.* at 4:1–2. When there is a loss of connectivity in the primary set of links, traffic is transferred to the backup set. *Id.* at 4:2–4. Often, there is no direct physical connection between the primary and backup external networks, and this causes processes in upper layers to be unable to quickly identify this loss of connectivity. *Id.* at 4:4–9. When this happens, it can take several minutes to identify the failure and divert network traffic to the backup. *Id.* at 4:9–11.

To address this issue, the '637 patent discloses improved methods for rapidly initiating the diversion of traffic from the failed primary topology to the backup topology. *Id.* at 4:17–19. When a network node detects a loss of connectivity in the primary topology, the node propagates this information to the other nodes. *Id.* at 4:19–22. "Upon receiving the propagated failure information, each node deactivates the physical layers of the primary set [of] links that are connected to the node." *Id.* at 4:22–25. This results in the endpoints rapidly detecting a local loss of connectivity and causing upper-layer protocols to perform a topology change, i.e., a diversion of traffic to the backup set of links. *Id.* at 4:25–28.

Figure 1 of the '637 patent is reproduced below.

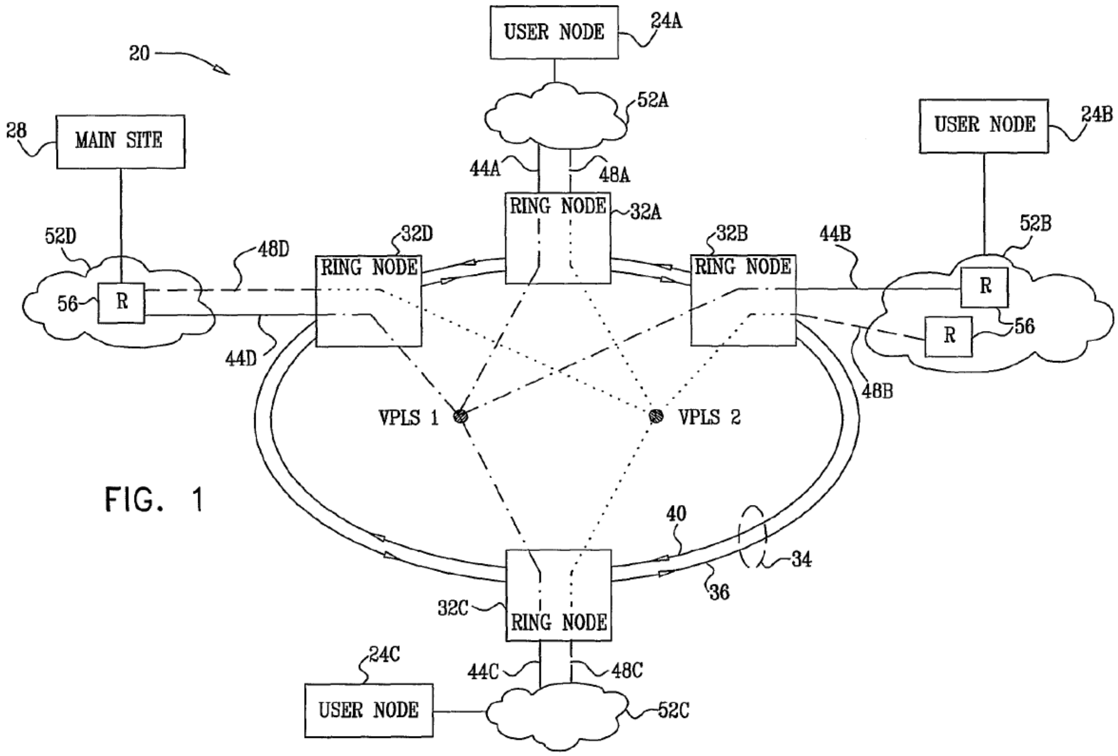


FIG. 1

Figure 1, reproduced above, "is a block diagram that schematically illustrates a ring-based communication network 20, in accordance with an embodiment of the present invention." Ex. 1001, 4:41–43. Network 20 comprises three user nodes 24A – 24C and main site 28, as well as multiple ring nodes, which are interconnected by bidirectional ring network 34. *Id.* at 4:51–59. Ring nodes 32A – 32D are connected by ring network 34, which comprises two unidirectional ringlets 36 and 40 that transfer packets in opposite directions. *Id.* at 4:60–63.

Network 20 comprises two alternative topologies that connect the different endpoints, with one topology serving as primary, and the other serving as backup. *Id.* at 5:1–3. The first topology utilizes a first VPLS instance, denoted VPLS1, and comprises the ring network and links 44A – 44D; and the second utilizes a second VPLS instance, VPLS2, and comprises the ring network and links 48A – 48D. *Id.* at 5:11–15, 5:37–40.

"Initially, communication among the endpoints is carried out over the primary topology (i.e., using VPLS1, over the ring network, links 48A . . . 48D and the appropriate routers 56)." *Id.* at 6:56–59.

The '637 patent discloses that, in operation, "when a failure occurs in one of the links of the VPLS1 topology, communication is transferred to the VPLS2 topology." Ex. 1001, 6:59–61. "[W]hen a network node detects a local failure or other loss of connectivity in one of the links of the primary topology, the node propagates this information to the other nodes of the primary topology." *Id.* at 7:10–13. The detecting node propagates the information by distributing a message, which is referred to by the '637 patent as a "remote fault indication (RFI)." *Id.* at 7:13–15. "Upon receiving an RFI message, each node disables the physical layers of the primary topology links that are locally connected to the node." *Id.* at 7:16–18. "As a result, the endpoints rapidly detect a local loss of connectivity and trigger a topology change, i.e., a diversion of the traffic from the failed primary topology to the backup topology." *Id.* at 7:22–25. The '637 patent further describes that RFI messages also are used to clear previously propagated failures, such as when a failed link is restored. *Id.* at 7:25–27.

C. Illustrative Claims

Claims 1–25 are challenged, and claims 1 and 16 are independent. Claim 1 is illustrative of the claimed subject matter and is reproduced below.

> 1. [1pre] A method for handling a communication failure in a network, comprising:
>
> [1a] provisioning different first and second instances of a multipoint-to-multipoint (MP-MP) communication service over respective first and second alternative sets of links that connect a plurality of endpoints in the network,

> [1b] each of the sets traversing a plurality of network nodes, which provide physical layer resources for operating the links;
>
> [1c] providing the communication service to the endpoints over the first set of links using the first instance;
>
> [1d] upon detecting a failure in the first set of links by a detecting node of the plurality of network nodes:
>
> [1e] propagating failure information by the detecting node to each node of the other nodes of the plurality of network nodes traversed by the first set of links;
>
> [1f] for each node of the other nodes of the plurality of network nodes traversed by the first set of links:
>
> [1g] receiving the failure information; and
>
> [1h] deactivating a physical layer of the first set of links connected thereto, thereby causing a loss of connectivity in the first set of links; and
>
> [1i] responsively to sensing the loss of connectivity, resuming the communication service over the second instance by automatically transferring communication among the endpoints to the second set of links.

Ex. 1001, 11:19–43 (bracketed designations added by Petitioner (*see* Pet. viii–ix)).

D. Asserted Grounds of Unpatentability

Petitioner, supported by the declaration of Dr. Henry H. Houh, Ph.D. (Ex. 1002), asserts the following grounds of unpatentability (Pet. 5)[1]:

[1] We apply the pre-AIA version of 35 U.S.C. § 103 because the claims at issue appear to have an effective filing date prior to March 16, 2013, the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"). *See* Ex. 1001, codes (22), (60).

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 7, 9–11, 13, 15–17, 19, 21, 23, 25	103	Mitchell[2]
2, 6, 12, 18, 22	103	Mitchell and Bhate[3]
3, 4	103	Mitchell and Raahemi[4]
5	103	Mitchell and Huai[5]
8, 14, 20, 24	103	Mitchell and Yamauchi[6]
9, 15, 25	103	Mitchell and McGee[7]

II. ANALYSIS

A. Level of Ordinary Skill in the Art

In order to determine whether an invention would have been obvious at the time the application was filed, we consider the level of ordinary skill in the pertinent art at the critical time. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). The resolution of this question is important because it allows us to "maintain[] objectivity in the obviousness inquiry." *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). In assessing the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation omitted). Generally, it is easier to establish obviousness under a higher level of

[2] U.S. Patent No. 8,208,370 B1 (Ex. 1005, "Mitchell")
[3] U.S. Patent No. 7,113,699 B1 (Ex. 1006, "Bhate")
[4] U.S. Patent Pub. No. 2007/0047556 A1 (Ex. 1007, "Raahemi")
[5] U.S. Patent No. 6,614,785 B1 (Ex. 1008, "Huai")
[6] U.S. Patent Pub. No. 2005/0073965 A1 (Ex. 1009, "Yamauchi")
[7] U.S. Patent Pub. No. 2006/0029097 A1 (Ex. 1010, "McGee")

ordinary skill in the art. *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) ("A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.").

Petitioner asserts that a person of ordinary skill in the art "would have had a bachelor's degree in computer science, computer engineering, electrical engineering, or an equivalent field, or approximately two years of experience working in the field of information technology and networking by November 16, 2005." Pet. 9. Petitioner also states that "[l]ack of professional experience can be substituted by additional education, and vice versa." *Id.* (citing Ex. 1002, ¶ 54). Patent Owner states that "[f]or the purposes of this Preliminary Response, Patent Owner does not dispute Petitioner's definition of a POSITA [person of ordinary skill in the art]." Prelim. Resp. 3.

The level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). As Petitioner's description of a person of ordinary skill appears commensurate with the subject matter before us, we apply Petitioner's definition for purposes of this Decision.

B. Claim Construction

We interpret claim terms using "the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b) (2019). In this context, claim terms "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at the time of the invention.

Phillips v. AWH Corp., 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (citations omitted) (en banc).

According to Petitioner, "no terms require construction for the purposes of this IPR." Pet. 9 (citing Ex. 1002 ¶¶ 52–53). Similarly, Patent Owner states that "at this stage in the proceeding, Patent Owner will apply the ordinary and customary meaning to the '637 Patent's claim terms." Prelim. Resp. 3.

Based on the record before us, we see no need for express construction of any term for the purposes of this Decision. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

C. Overview of the Asserted Prior Art

1. Mitchell (Ex. 1005)

Mitchell is titled "Method and System for Fast Link Failover" and "relates generally to communications networks and more particularly to a method and system for fast link failover." Ex. 1005, code (54), 1:7–9. Mitchell discloses a method and system for fast link failover wherein:

> network connectivity (e.g., data link layer connectivity) information is propagated, thereby enabling downstream network elements not immediately adjacent to the site of a link failure or directly coupled to a network element experiencing link failure to failover to alternate, redundant links such that the state of one or more connections or communications channels with the upstream portion(s) of a communications network may be preserved and the connection(s)/channel(s) may be maintained.

Ex. 1005, 2:25–33. Figure 4 of Mitchell is reproduced below.

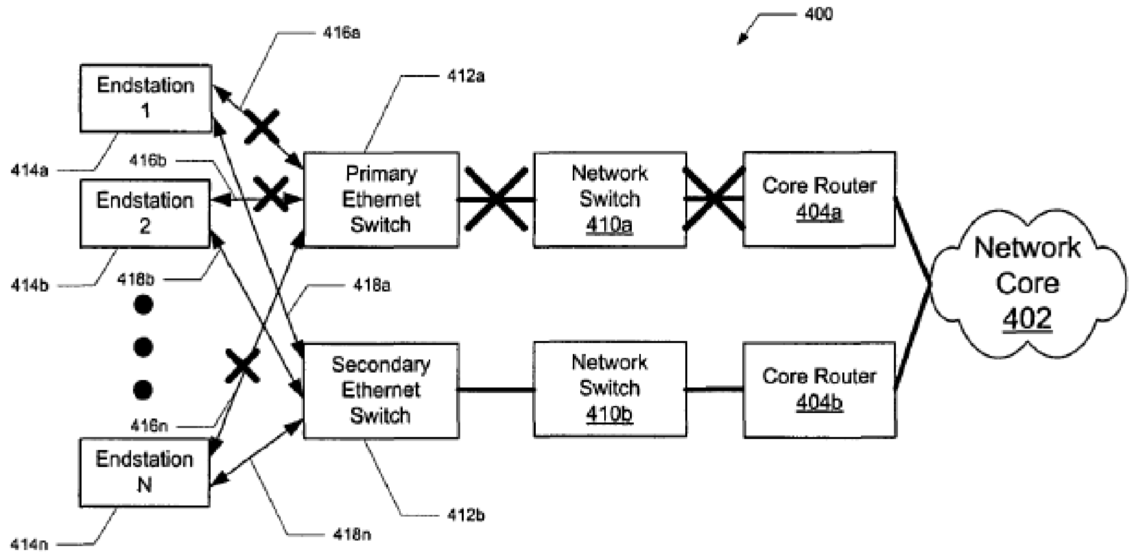
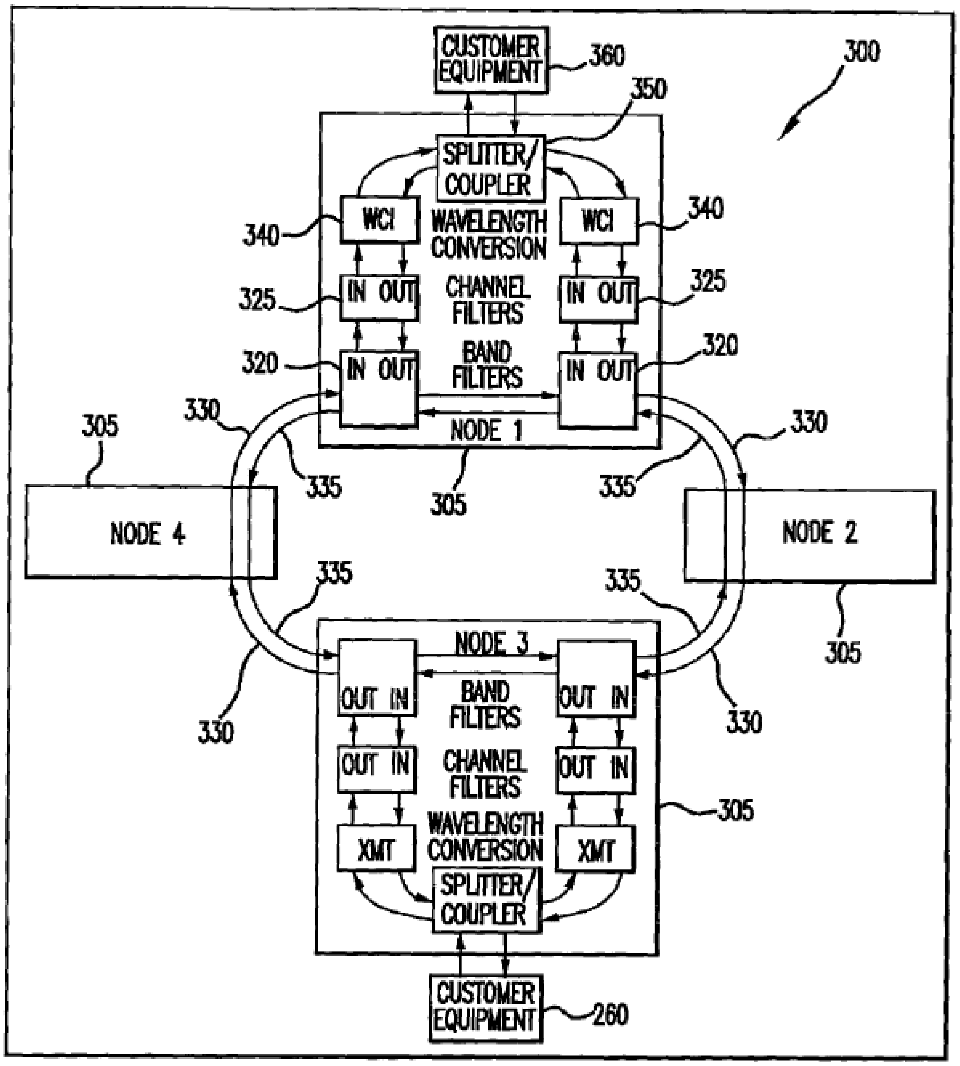


Figure 4 "illustrates a data processing system including a primary Ethernet switch network element according to an embodiment" of Mitchell. *Id.* at 7:34–36. As shown in Figure 4, data processing system 400 is implemented including core network 402, primary and secondary core routers (404a and 404b), primary and secondary network switches (410a and 410b), and primary and secondary Ethernet Switches (412a and 412b) coupled together using a plurality of links and further including a plurality of multihomed endstations 414a–414n similarly coupled to primary Ethernet switch 412a via one of a plurality of primary downstream links 416a–416n (e.g., via a primary network interface card or host bus adapter) and to secondary Ethernet switch 412b via one of a plurality of secondary downstream links 418a–418n (e.g., via a secondary network interface card or host bus adapter). *Id.* at 7:37–49. Mitchell describes that a failure such as that illustrated on a link between primary network switch 410a and core router 404a may be propagated downstream to one or more of end stations 414. *Id.* at 7:49–53. Endstations 414 may include any of a number of network elements (e.g., management modules, processor blades, processor modules, or the like). *Id.* at 7:53–55.

2. *Bhate (Ex. 1006)*

Bhate is titled "Fault Forwarding in an Optical Network" and "relates generally to fault detection and restoration in a unidirectional path switched ring network." Ex. 1006, codes (54), 1:16–18. Bhate discloses a method and apparatus for forwarding fault information in an optical network in which at least some of the nodes provide a service (e.g., Gigabit Ethernet, Fiber Channel, or Clear Channel) for which there is no standard alarm signal for propagating fault information that is recognized throughout the entire optical network. *Id.* at 2:26–32. By way of background, Bhate discloses that "[u]nidirectional path switched ring (UPSR) optical networks are of interest for telecommunications." *Id.* at 1:20–21. Bhate teaches that some standard protocols permit alarm signals to be used to propagate fault information, such as the synchronous optical network (SONET) standard which includes an alarm indication signal (AIS). *Id.* at 1:38–43. However, some types of services do not have standard alarm signal protocols.

Figure 3 of Bhate, reproduced below, is a block diagram illustrating features of an exemplary UPSR network. Ex. 1006, 2:1–2.



As shown in Figure 3, each optical node 305 includes optical components for implementing an optical add drop multiplexer, such as band filters 320 and channel filters 325. *Id.* at 4:36–38. The optical network includes working fibers 330 and protection fibers 335 for communicating traffic simultaneously in two different directions along a working path and a protection path between a source node and a destination node. *Id.* at 4:40–44.

3. Raahemi (Ex. 1007)

Raahemi is titled "Resiliency in Minimum Cost Tree-Based VPLS Architecture" and relates to "providing resilient multimedia broadcasting services over a VPLS network." Ex. 1007, codes (54), (57). Raahemi describes "a scheme for implementing Split Horizon (a characteristic of VPLS-enabled edge routers) together with dual connectivity at the receiver PE's [Provider Edges] to facilitate the switch-over process." *Id.* ¶ 14.

4. Huai (Ex. 1008)

Huai is titled "Automatic Propagation of Circuit Information in a Communication Network" and "generally relates to communications networks and more particularly to networks having routers and circuit switches." Ex. 1008, code (54), 1:61–64. Huai discloses that a network can include multiple circuit switches that are coupled together by communications links ("links"). *Id.* at 2:35–37. Huai describes that information relating to a link coupling two circuit switches is automatically propagated on the network using a protocol which is ordinarily used by routers ("packet routing protocol") in communicating with other routers. *Id.* at 2:37–41.

5. Yamauchi (Ex. 1009)

Yamauchi is titled "Auto-Negotiation Monitor System, Repeating-Transmission Apparatus, and Auto-Negotiation Monitor Method Used Therefor" and "relates to a technology for detecting a failure that occurs in a network for transferring an LAN (local area network) signal between switches via the repeating-trans-mission apparatus and determining the failure point." Ex. 1009, code (54), ¶ 3. Yamauchi describes an auto-negotiation monitor system that can monitor the link state of LAN switches opposed to each other and determine which of the opposing LAN switches brought its link down. *Id.* ¶ 8.

6. McGee (Ex. 1010)

McGee is titled "Dynamic Allocation and Configuration of a Computer System's Network Resources" and relates to a "resource allocation application" that is "configured to run on a computer system that is coupled through a plurality of network resources to one or more networks" and wherein "[r]esource usage is continuously monitored to identify actionable resource usage conditions" and "network resources are automatically reconfigured in accordance with the one or more usage policies in response to the actionable resource usage conditions." Ex. 1010, codes (54), (57).

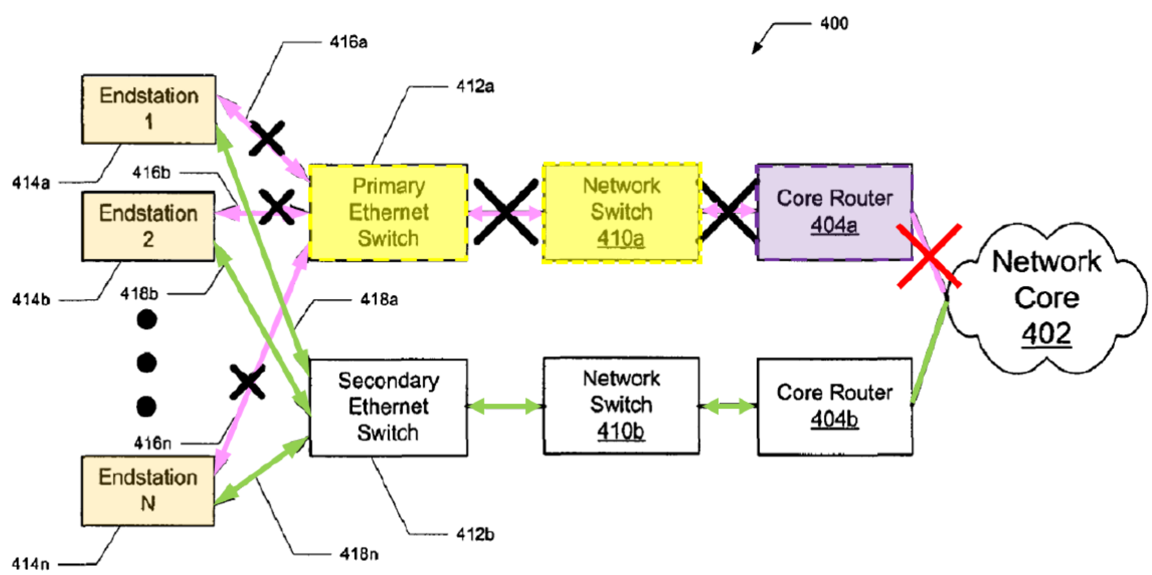
D. Asserted Obviousness

Petitioner asserts that independent claims 1 and 16 are obvious over Mitchell. Pet. 9–37. Claim 1 recites, in relevant part, "propagating failure information by the detecting node to each node of the other nodes of the plurality of network nodes traversed by the first set of links; for each node of the other nodes of the plurality of network nodes traversed by the first set of links; receiving failure information." Ex. 1001, 11:31–36. Claim 16 similarly recites, in relevant part, "to propagate a first message notifying all other nodes in the network that are traversed by the first set of links upon detecting the local failure; and to receive a second message from another node indicating a remote failure in the first set of links." *Id.* at 12:48–52. Thus, both independent claims require the propagation and receipt of a message/information in order to notify "each node of the other nodes" / "all other nodes" of a failure. Petitioner relies upon the same disclosures of

Mitchell to render obvious these portions of claims 1 and 16. *See* Pet. 23–26 (limitations 1e–1g), Pet. 35 (limitations 16e–16f). We, thus, consider Petitioner's arguments for claims 1 and 16 together.

Petitioner argues that "Mitchell discloses that upon detection of a failure in the link, the link failure information is propagated downstream by the detecting node." Pet. 23 (citing Ex. 1005, 4:10–15, 2:23–33). Petitioner contends that Mitchell teaches the utilization of a link failure propagation module that detects link failure. *Id.* (citing Ex. 1005, 5:50–55). Petitioner asserts that it would have been obvious to one of ordinary skill in the art that "core router 404a may also be equipped with a link failure propagation module to allow the core router 404a to propagate the failure information to each of network switch 410a and primary ethernet switch 412a that are traversed by the group of links." *Id.* at 24 (citing Ex. 1005, 7:49–53, 4:10–15, 7:25–29, 5:14–29). Petitioner also argues that "Mitchell discloses that each of the downstream network elements (i.e., network switch 410a and primary ethernet switch 412a) receive the propagated failure information." *Id.* at 25.

Petitioner provides an annotated version of Mitchell's Figure 4, which is reproduced below, to illustrate its contentions. *Id.* at 25.



EX1005, FIG. 4. EX1002, ¶94.

Petitioner's annotated Figure 4, reproduced above, depicts Mitchell's data processing system 400 including primary and secondary core routers 404a and 404b respectively. *See* Ex. 1005, 7:34–39. As described in Mitchell, "a failure such as that illustrated on a link between primary network switch 410a and core router 404a may be propagated downstream to one or more of end stations 414." *Id.* at 7:49–53. Petitioner argues that one of ordinary skill in the art would have understood that a failure occurring between core network 402 and core router 404a (as shown by the red X in the annotated figure) would be handled in the same manner. Pet. 25; *see also* Ex. 1002 ¶ 94 ("link failure propagation module could be stored in ***core router 404a***, which would allow ***core router 404a*** to detect a failure . . . and propagate the ***failure*** information to the downstream network elements").

Patent Owner contends that these disclosures are insufficient to teach the disputed limitations. Prelim. Resp. 5–7. Patent Owner argues, and we agree, that Mitchell does not teach the required propagation and receipt to all of the nodes in the network. *Id.* Specifically, Patent Owner contends that

"Mitchell does not disclose the propagation of failure information to ***each*** node in the network topology, rather, Mitchell only teaches that 'failure information is propagated ***downstream***.'" *Id.* at 6 (citing Ex. 1005, 4:10–15)." Patent Owner points out that Mitchell states "that even after the downstream network elements 'failover to alternate, redundant links,' 'one or more connections or communications channels with the upstream portions(s) of a communications network may be preserved.'" *Id.* at 7 (citing Ex. 1005, 2:24–33).

We are persuaded by Patent Owner's arguments. As Petitioner notes, the '637 patent describes that "when the detecting network node 32D 'detects a local failure or other loss of connectivity in one of the links,' the detecting network node 32D '***propagates this information to the other nodes of the primary topology*** . . . by distributing a message, . . . [called] a remote fault indication (RFI).'" Pet. 7 (quoting Ex. 1001, 7:10–13, 7:13–15) (emphasis added). Patent Owner argues that the '637 patent claims disclose a system in which any node in the network can detect a failure and propagate that failure information to all of the other nodes – not just nodes downstream of the failure. Prelim. Resp. 5–6. According to Patent Owner, "[i]n each embodiment disclosed by Mitchell, failure information is only propagated downstream of the failed link." *Id.* at 6; *see, e.g.*, Ex. 1005, 4:10–11 ("[a]s the link state or link failure information is propagated downstream") (cited on page 23 of Petition and page 6 of Preliminary Response). In short, Patent Owner contends that "[n]othing in Mitchell's disclosure suggests the deactivation of links upstream of the link failure." Prelim. Resp. 7.

Dr. Houh's declaration is replete with references to Mitchell teaching downstream propagation of failure information. For example, Dr. Houh states that in Mitchell, "***failure*** is then detected by network switch 410a, which propagates the **failure** to all network nodes downstream of the failed link." Ex. 1002 ¶ 58; *see also id.* ¶ 60 ("**failure** results in the propagation of the failure and **deactivation** of the downstream links"). Dr. Houh states that

> [i]t will be appreciated that the use of the terms 'upstream' and 'downstream' within the present description is relative based upon the particular network element considered. For example, a link between primary switch 104 a and endstation 106 a is considered a 'downstream' link from the perspective of primary switch 104 a and an 'upstream' link from the perspective of endstation 106 a.

Id. ¶ 60. Dr. Houh further states that "[w]ithin the present description, the term 'downstream' is intended to indicate in a direction from a network's core to a network's edge or towards a network's edge, the term 'upstream' by contrast is intended to indicate in a direction from a network's edge to a network's core or towards a network's core." *Id.* ¶ 64; *see also* Ex. 1005, 4:15–20 (providing the same description of upstream and downstream).

The Petition similarly discusses Mitchell as teaching the disabling of downstream links. The Petition states that "[t]o be clear, **failure** can occur anywhere in the group of primary links. For example, Figure 2 shows a failure that occurred in link 108a between primary switch 104a and upstream network 102, which then causes the disabling of the additional downstream links." Pet. 11. In other words, failure can occur anywhere, but communication of that failure only occurs downstream. Petitioner also flatly states that "Mitchell discloses that each of the downstream network elements (*i.e.*, network switch 410a and primary ethernet switch 412a) receive the propagated failure information." *Id.* at 25. Further, as noted above Mitchell states that in the event of a failure "the state of one or more connections or communications channels with the upstream portion(s) of a communication network may be preserved and the connection(s)/channel(s) may be maintained." Ex. 1005, 2:29–33 (cited on pages 25–26 of Petition).

Thus, based on our review of the reference, Dr. Houh's testimony, and the parties' arguments, we understand Mitchell to teach the propagation of failure information from the location of the failure to the network's edge or endpoints and that this propagation excludes nodes between the detected failure and the network's core. Therefore, the question before us is whether one of ordinary skill in the art would have learned of the recited propagation and receipt to and from "each node of the other nodes of the plurality of network nodes traversed by the first set of links"[8] from Mitchell's downstream propagation of failure information. We are not persuaded that Petitioner's showing is sufficient.

Petitioner relies upon a circumstance where the failure occurs far upstream and uses that case to assert that Mitchell teaches the recited propagation and receipt. Claims 1 and 16, however, respectively recite the propagation to "each node" and "all nodes." Mitchell, in contrast, does not teach propagation to each node, but rather it teaches continuing down the path to message only the remaining nodes in the path between the failure and the endpoints. It specifically and explicitly sets out to maintain connectivity with all nodes upstream of the failure. This is materially different from the claims of the '637 patent, and Petitioner has not provided a sufficient explanation to establish that one of ordinary skill in the art would have found it obvious to extend Mitchell's downstream-only propagation to instead

[8] Petitioner relies upon the same teachings from Mitchell in its discussion of claim 16's similar recitation of "notifying all other nodes in the network that are traversed by the first set of links upon detecting the local failure." *See* Pet. 35.

include the recited propagation and receipt of failure information to and by each and all nodes. In other words, Petitioner does not assert that one of ordinary skill in the art would have understood Mitchell's disclosures to teach any interaction with the upstream nodes that would inform those nodes of a failure. Nor does Petitioner or Dr. Houh explain that an expansion of Mitchell's teaching to include such an interaction with the upstream nodes would have been obvious. Mitchell sets out to preserve upstream links and the existence of a case that Petitioner argues has no upstream links with connectivity that may be preserved does not teach a system that sets out to disrupt all links.

This distinction also permeates the further requirements of claims 1 and 16. *See* Prelim. Resp. 7–10. For example, claim 1 additionally recites, in relevant part, "deactivating a physical layer of the first set of links connected thereto, thereby causing a loss of connectivity in the first set of links." Ex. 1001, 11:37–39 (limitation [1h]). Claim 16 similarly recites, in relevant part, "to deactivate the physical layer resources of each node to links in the first set of links connected to that node upon receiving the second message, to cause a loss of connectivity in the first set of links." *Id.* at 12:54–58 (limitation [16g]). Thus, claims 1 and 16 both require deactivating the physical layer of nodes in order to cause a loss of connectivity in the first set of links. Petitioner asserts that Mitchell teaches that "the physical layer of the links connected downstream of these network elements are deactivated, which causes a loss of connectivity in the 'group of links.'" Pet. 26 (emphasis omitted); *see also id.* at 36 (making same argument for claim 16). We are not persuaded that downstream deactivation teaches the deactivation of "each node" nor does it teach the "loss of connectivity in the first set of links." This is true because Mitchell teaches the preservation of connectivity in upstream links. Petitioner does not argue that one of ordinary skill would have understood Mitchell to teach deactivation of the set of links, but rather Petitioner argues that there could be a circumstance where Mitchell may be unable to preserve connectivity because the failure happened at the most upstream location. This is not sufficient to teach a system that deactivates all nodes in the set of links in order to cause a loss of connectivity in the set of links because Mitchell sets out to maintain some degree of connectivity.

We agree with Patent Owner that the disclosures of Mitchell would not have taught one of ordinary skill in the art the recited propagation and receipt of failure information to and by each of the nodes in the network nor would it have taught the recited deactivation to cause a loss of connectivity in the set of links. As such, Petitioner has not met its burden to demonstrate that Mitchell would have rendered independent claims 1 or 16 obvious. As to dependent claims 2–15 and 17–25, Petitioner makes no further allegations that would remedy the deficiency discussed above in regards to the independent claims. As such, Petitioner has not met its burden to show that any of claims 1–25 would have been obvious over the asserted art.

III. DISCRETIONARY DENIAL UNDER 35 U.S.C. § 314(A)

Patent Owner argues the Board should exercise its discretion under 35 U.S.C. § 314(a) and deny institution in light of the parallel litigation involving the '637 patent. Prelim. Resp. 11–17; *see Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020) (precedential). As our findings and conclusions above lead us to deny institution on the merits of

Petitioner's challenges, we need not address the *Fintiv* factors or decide whether to exercise our discretion under 35 U.S.C. § 314(a).

IV. CONCLUSION

For the reasons set forth above, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to at least one challenged claim of the '637 patent.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner's request for an *inter partes* review of claims 1–25 of the '637 patent is *denied*.

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