UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

PORTSMOUTH NETWORK CORP.,
Patent Owner.

Case IPR2024-00506

Patent 8,014,394

PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

I. Introduction....1

A. Grounds and Challenged Claims....2

B. Claim Construction....7

C. Person of Ordinary Skill in the Art....8

D. Legal Framework....9

E. Institution Decision....10

II. Ground 1: Weyman in view of Li Does Not Render Obvious Claims 1, 4, 6-7, 11, 14, and 17....10

A. A POSITA Would Not Have Combined Weyman and Li....10

B. Independent Claim 1....20

1. Weyman and Li do not teach aggregating ports by "setting an upper limit on a number of the multicast packet streams that are permitted for forwarding over the high-capacity port" (claim limitation 1k)....20

C. Independent Claim 11....24

III. Ground 4: Weyman in View of Jain and LeMaire Does Not Render Obvious Claims 8 and 18....24

A. Independent Claim 8....24

1. Weyman, Jain, and LeMaire do not teach "deactivating the ports to which the new processing unit is assigned" (claim limitation 8k)....24

B. Independent Claim 18....28

IV. Dependent Claims....29

A. Weyman in View of Li and Rooholamini fails to teach or render obvious claims 5 and 15 29

V. Conclusion 31

TABLE OF AUTHORITIES

Cases **Page(s)**

Arendi S.A.R.L. v. Apple Inc.,
832 F.3d 1355 (Fed. Cir. 2016) 9

Metalcraft of Mayville, Inc. v. Toro Co.,
848 F.3d 1358 (Fed. Cir. 2017) 10, 11, 12

Panduit Corp. v. Dennison Mfg. Co.,
810 F.2d 1561 (Fed. Cir. 1987) 9

SAS Inst., Inc. v. ComplementSoft, LLC,
IPR2013-00581, 2013 WL 8595535 (PTAB Dec. 30, 2013) 9

SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp.,
225 F.3d 1349 (Fed. Cir. 2000) 9

Univ. of Strathclyde v. Clear-Vu Li*ghting LLC*,
17 F.4th 155 (Fed. Cir. 2021) 9

Exacq Techs., Inc. v. JDS Techs., Inc.,
IPR2016-00568, 2016 WL 4987613 (PTAB June 14, 2016) 10

Statutes

35 U.S.C. § 103 9

35 U.S.C. § 316(e) 9

Other Authorities

37 C.F.R. § 42.120 1

37 C.F.R. § 42.304(b)(4) 9

Pursuant to 37 C.F.R. § 42.120, Patent Owner Portsmouth Network Corp. ("Patent Owner") respectfully submits this Response to the Petition filed by Petitioner Cisco Systems, Inc. ("Petitioner") regarding U.S. Patent No. 8,014,394 (EX1001, "'394 Patent").

I. Introduction

The '394 Patent claims a novel and non-obvious system to forward multicast packets in a network. Response time is important for many multicast content applications, like television. For example, when a user switches from one television channel to another, the user's set-top box must stop receiving one multicast packet stream and start receiving another multicast stream immediately, otherwise the user will notice a considerable delay. This issue becomes even more noticeable if the multicast content application must respond to multiple requests in quick succession.

The '394 Patent discloses techniques and methods to rapidly adapt to such requests to change multicast forwarding configurations. For example, the '394 Patent discloses storing lists in each processing unit indicating which multicast packet streams are allowed to be forwarded over the ports, distributing a multicast content request among multiple processing units, updating the lists for each processing unit, and selectively forwarding multicast packets based on the updated lists in each processing unit. The '394 Patent also discloses ways to adjust to other changes in the network, such as when a new line card is inserted. For example, the

claimed system may disable local ports of the newly-added line card and transmit a multicast status update request, which allows the newly-added processing unit to stay up-to-date.

The Petition raises seven different obviousness grounds. Six out of seven of Petitioner's grounds rely on at least three references for the obviousness combinations. Two of Petitioner's grounds rely on a four-reference obviousness combination. Petitioner, however, fails to establish that the challenged claims are unpatentable.

As will be described in more detail below, Petitioner's obviousness combination Weyman in view of Li does not disclose setting an upper limit on multicast packet streams that are permitted for forwarding over a high-capacity port as required by claim limitations [1k] and [11j]. Additionally, Petitioner's combination of Weyman, Jain, and LeMaire does not disclose deactivating ports of a new processing unit added to the network element unit as required by claim limitations [8k] and [18j].

A. Grounds and Challenged Claims

The Board instituted review on the following obviousness grounds. Paper 8 at 36.

Ground	Claims Challenged	35 U.S.C. §	References/Basis
1	1, 4, 6–7, 11, 14, 16–17	103	Weyman, Li

2	5, 15	103	Weyman, Li, Rooholamini
3	16	103	Weyman, Li, Pitcher
4	8, 18	103	Weyman, Jain, LeMaire
5	9	103	Weyman, Jain, LeMaire, Li
6	10	103	Weyman, Jain, LeMaire, Pitcher
7	2, 12	103	Weyman, Li, Ding

The challenged claims include four independent claims: 1, 8, 11, and 18. Independent claim 1 is provided below. For purposes of this Response, Patent Owner uses the same claim limitation numbering as the Petition.

[1pre] A method for communication, comprising:

[1a] operating a network element,

[1b] wherein the network element further comprises multiple interconnected processing units and multiple ports,

[1c] wherein each processing unit is assigned to a different subset of the multiple ports of the network element, and

[1d] wherein each processing unit contains a processor for processing packets communicated over the different subset of the multiple ports to which the processing unit is assigned;

[1e] storing in each processing unit a respective list, each list indicating all of one or more multicast packet streams that are permitted for forwarding by the

network element, and further indicating which of the one or more ports each multicast packet stream is permitted to be forwarded to;

[1f] receiving from a client a request relating to reception of a given multicast packet stream;

[1g] distributing the request among the multiple processing units within the network element, and

[1h] updating the respective list in each processing unit responsively to the request; and

[1i] selectively forwarding multicast packets associated with the given multicast packet stream by the processing units in accordance with the respective updated lists,

[1j] wherein operating the network element comprises aggregating two or more of the ports to form a high-capacity port, and

[1k] wherein aggregating the ports comprises setting an upper limit on a number of the multicast packet streams that are permitted for forwarding over the high-capacity port,

[1l] wherein the request indicates that the given multicast packet stream is to be forwarded over the high-capacity port, and

[1m] wherein updating the list comprises modifying the list to indicate that the given multicast packet stream is permitted for forwarding over the high-capacity

port only when the number of the multicast packet streams that are permitted for forwarding over the high-capacity port, including the given multicast packet stream, does not exceed the upper limit.

Independent claim 8 is a method claim that includes limitations similar to claim 1. However, claim 8 does not recite aggregating ports "to form a high-capacity port." Furthermore, claim 8 recites that a new processing unit is "added to the network element" and that the new processing unit is initialized. Claim 8 is reproduced below:

[8pre] A method for communication, comprising:

[8a] operating a network element,

[8b] wherein the network element further comprises multiple interconnected processing units and multiple ports,

[8c] wherein each processing unit is assigned to a different subset of the multiple ports of the network element, and

[8d] wherein each processing unit contains a processor for processing packets communicated over the different subset of the multiple ports to which the processing unit is assigned;

[8e] storing in each processing unit a respective list, each list indicating all of one or more multicast packet streams that are permitted for forwarding by the

network element, and further indicating which of the one or more ports each multicast packet stream is permitted to be forwarded to;

[8f] receiving from a client a request relating to reception of a given multicast packet stream;

[8g] distributing the request among the multiple processing units within the network element, and

[8h] updating the respective list in each processing unit responsively to the request; and

[8i] selectively forwarding multicast packets associated with the given multicast packet stream by the processing units in accordance with the respective updated lists,

[8j] wherein operating the network element comprises initializing a new processing unit added to the network element by:

[8k] deactivating the ports to which the new processing unit is assigned;

[8l] while the ports to which the new processing unit is assigned are deactivated, sending a multicast status request, receiving multicast membership reports sent by multicast clients in response to the multicast status request, constructing the list by the new processing unit based on the received multicast membership reports; and

[8m] after constructing the list, activating the ports to which the new processing unit is assigned.

Independent claim 11 is an apparatus claim that includes similar limitations to method claim 1, which recites a network element comprising multiple ports and multiple interconnected processing units.

Independent claim 18 is an apparatus claim that includes similar limitations to method claim 8, which recites a network element comprising multiple interconnected processing units and a new processing unit added to the network element.

B. Claim Construction

For purposes of this Response, Patent Owner will apply the ordinary and customary meaning to the ’394 Patent’s claim terms. Patent Owner notes that Petitioner also asserts that no claim requires express construction for the grounds presented in the Petition. Petition at 12. Patent Owner notes that claim construction was ongoing in parallel district court litigation against Petitioner, and Patent Owner’s positions herein do not rely on any proposed construction from that parallel litigation.

Patent Owner also notes that in the parallel district court litigation, Petitioner asserted specific claim constructions for the following terms:

Term	Claims	Petitioner's District Court Proposed Construction
"multicast packet stream"	1, 3-6, 8-11, 13-16, 18	"the actual content coming from a multicast source, such as a channel or movie"
"a new processing unit added to the network element"	8, 18	"a processing unit newly-inserted into the network element"

See Exhibit A to Patent Rule 4-5(d) Joint Claim Construction Chart (EX2003) at 25–37. In its Petition, however, Patent Owner has failed to address these constructions or explain how the various reference combinations render obvious the challenged claims under these constructions. To the extent the Board finds that any of these constructions apply, Patent Owner submits that Petitioner has failed to establish that the asserted prior art combinations render the challenged claims obvious under these proposed constructions.

C. Person of Ordinary Skill in the Art

Petitioner proposes a definition of a person of ordinary skill in the art ("POSITA") as of the priority date of the '394 Patent (February 11, 2009). Petition at 12. For purposes of this Response, Patent Owner uses the same definition of a POSITA.

D. Legal Framework

Petitioner must prove that the '394 Patent's claims are obvious by a preponderance of the evidence. 35 U.S.C. § 316(e). Obviousness requires a showing that (1) all of the claimed limitations are found in the prior art reference(s) and (2) a POSITA would have been motivated to modify or combine the prior art reference(s) to achieve the claimed limitation. *Univ. of Strathclyde v. Clear-Vu* L*ighting LLC*, 17 F.4th 155, 160 (Fed. Cir. 2021); 35 U.S.C. § 103(a) (pre-AIA). Single-reference obviousness nonetheless requires a showing of motivation to modify the reference. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016); *SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000). Also, a prior art reference must be considered in its entirety, including portions that would lead away from the claimed invention. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987).

An IPR petition must state "[h]ow the construed claim is unpatentable under [35 U.S.C. § 103]," and "must specify where each element of the claim is found in the prior art." 37 C.F.R. § 42.304(b)(4). Conclusory statements alleging a motivation to modify or combine the references are insufficient to demonstrate obviousness. *See e.g., SAS Inst., Inc. v. ComplementSoft, LLC*, IPR2013-00581, 2013 WL 8595535, at *6 (PTAB Dec. 30, 2013) (rejecting alleged motivation that "[the combination] would increase the functionality of the [primary reference]");

Exacq Techs., Inc. v. JDS Techs., Inc., IPR2016-00568, 2016 WL 4987613 (PTAB June 14, 2016) ("Simply stating that the combination 'would merely be the use of known validation techniques to improve a similar network camera system in the same way,' … without evidence, is not sufficient."). "[H]indsight bias" cannot be "the thread that stitches together prior art patches into something that is the claimed invention." *Metalcraft of Mayville, Inc. v. Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017).

E. Institution Decision

The Institution Decision preliminarily determined that Petitioner's showing was adequate based on the then-current record and for the purposes of institution. *See* Paper 8 at 35–36. This Response explains why Petitioner's ground fails to render the challenged claims unpatentable.

II. Ground 1: Weyman in view of Li Does Not Render Obvious Claims 1, 4, 6-7, 11, 14, and 17

A. A POSITA Would Not Have Combined Weyman and Li

A POSITA would not have been motivated to combine Li's teachings to Weyman's distributed router system. EX2001 at ¶ 40. Weyman and Li are related to two different technological areas. For example, Weyman "relates to packet-switched communication networks, particularly though not exclusively those employing media access control (MAC) addressing and network (IP) addressing of packets." EX1005 at [0001]; *see also* EX2001 at ¶ 41. Weyman further discloses

that its invention relates to interconnecting network switches or units into a switching fabric. *See id.* at [0002] ("It is known, particularly for network switches, to interconnect a multiplicity of network units into a switching fabric so that in effect, and particularly in relation to the external network, the units act as a single network entity."). Additionally, Weyman discloses that aggregated links do not go to users but instead to ethernet switches, as shown in FIG. 6 below:

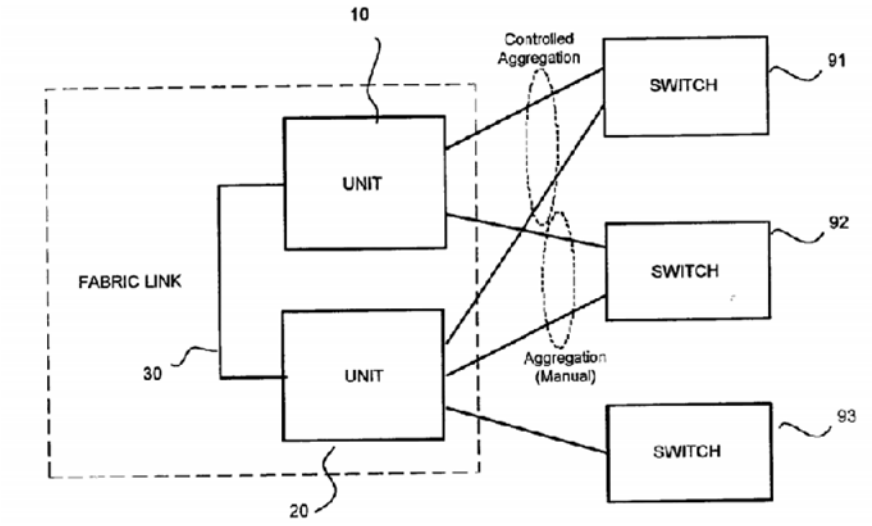


FIG.6

EX1005 at FIG. 6.

As a result, Weyman discloses that its aggregated links cannot connect into an access network. *See* EX2001 at ¶ 41.

Li is directed to an access device for processing multicast service. EX1007 at 72:17–18 ("The present invention relates to the field of data communication, and, in particular, to a method, system, and access device for processing multicast service."). An example of Li's multicast system is provided in Figure 1 of Li below,

which includes "a video multicast services system 10, an IP-based metropolitan area network (MAN) 11, an access network 12, and a home network 13." EX1007 at 72:21–23; FIG. 1.

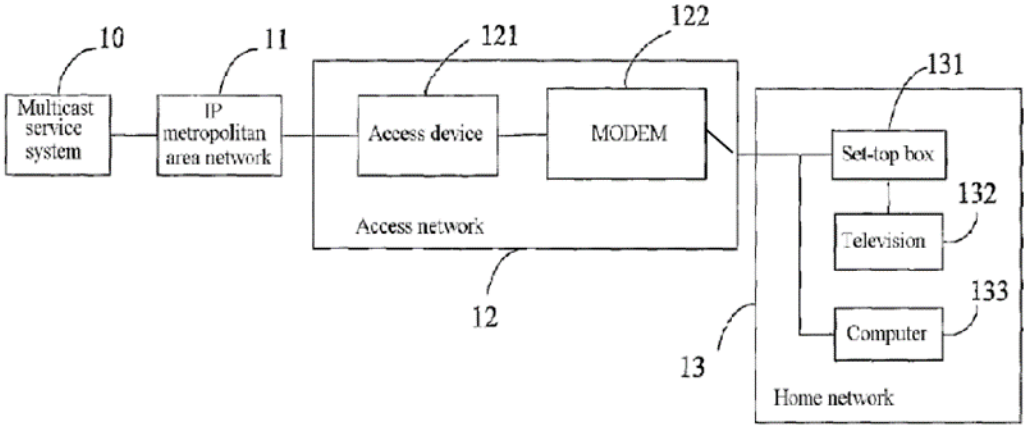


FIG. 1

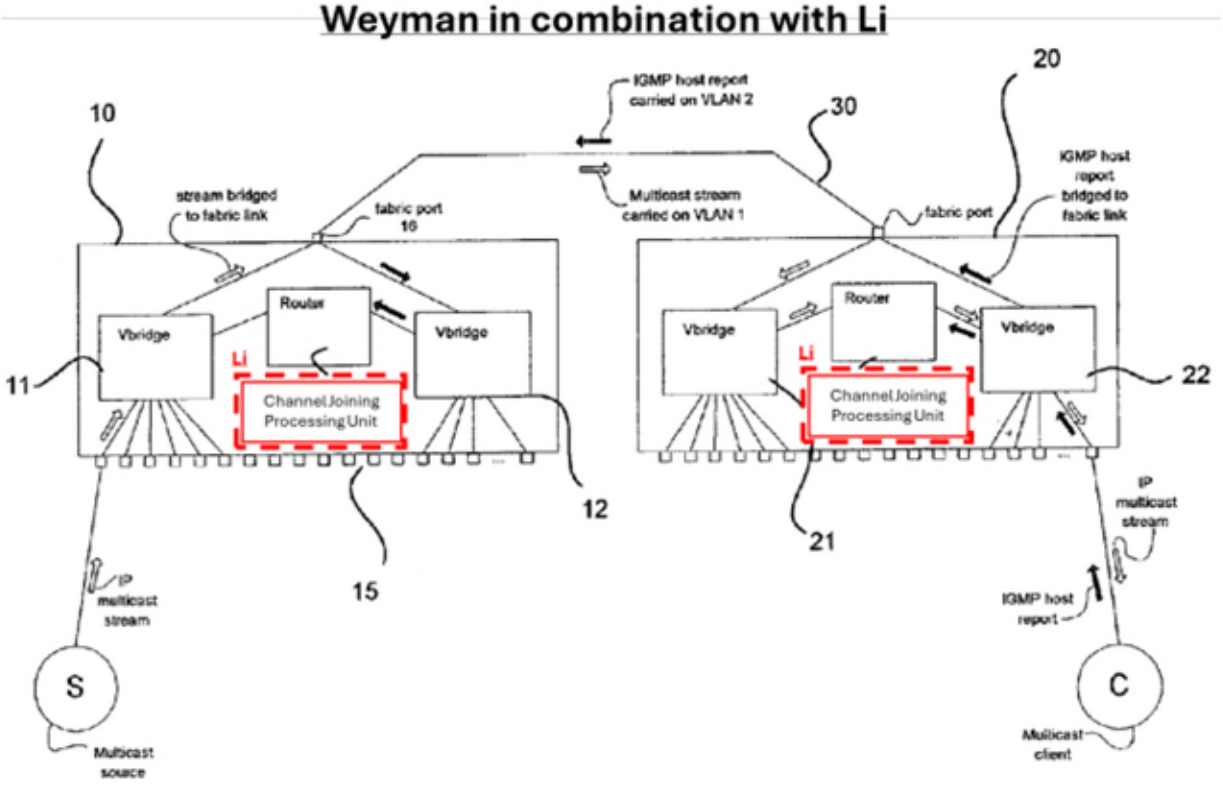
EX1007, FIG. 1.

In view of the above, Weyman relates to a packet switched network while Li relates to access networks. Therefore, a POSITA would understand that Weyman and Li are directed to different types of networks. EX2001 at ¶¶ 41–43.

The devices disclosed in Weyman and Li also operate in different ways. EX2001 at ¶ 43. Weyman discloses operations on layer 2 ethernet. *See e.g.*, EX1005 at [0028]. Weyman also discloses that its distributed bridging fabric uses Vbridges that forward data traffic frames according to its layer 2 ethernet (media access control) address. *Id.* at [0028], FIG. 2; *see also* EX2001 at ¶ 43.

Li's access devices are not ethernet-based. EX2001 at ¶ 44. Rather, Li discloses that its access device "is a Digital Subscriber Line Access Multiplexer (DSLAM) functioning as a multicast router, and provides the user with a Digital Subscriber Line (xDSL) service port." EX1007 at 97:13–17. Li's access devices communicate to users over xDSL service ports which utilize twisted the twisted pairs of wires running into a home or office. *See* EX1007 at FIG. 9; *see also* EX2001 at ¶ 44. Therefore, Weyman and Li relate to two different types of products using two different types of media in two different types of networks. EX2001 at ¶ 45.

The Petition presents a modified version of Weyman's system combined with Li, as shown below (the "Weyman-Li figure"):



Petition at 22.

In Petitioner's modification, Li's channel joining processing unit is added to Weyman's network units 10 and 20 in the modified figure. The Petition states that "a POSITA would have been motivated to incorporate Li's channel joining processing unit into Weyman's distributed router so that Weyman's distributed router does not overload a particular port and degrade the router's reliability." Petition at 22. The Petition also asserts that a POSITA would have been motivated to incorporate Li's channel joining processing unit into individual units in Weyman's router "to control the assignment of multicast streams to ports locally at

the unit." *Id*. at 22–23. The Petition further states that "a POSITA would have understood that the local control of port's workload is desirable because the alternative option – the global control of port's workload – would have required the use of internal fabric link to communicate with all units in the distributed router." *Id*. at 23. However, Petitioner's arguments fail. *See* EX2001 at ¶ 50.

First, the Petition's arguments do not consider Weyman's teachings regarding controlled aggregation links. Figure 6 of Weyman displays aggregation links and two different network units in the distributed router, as shown below:

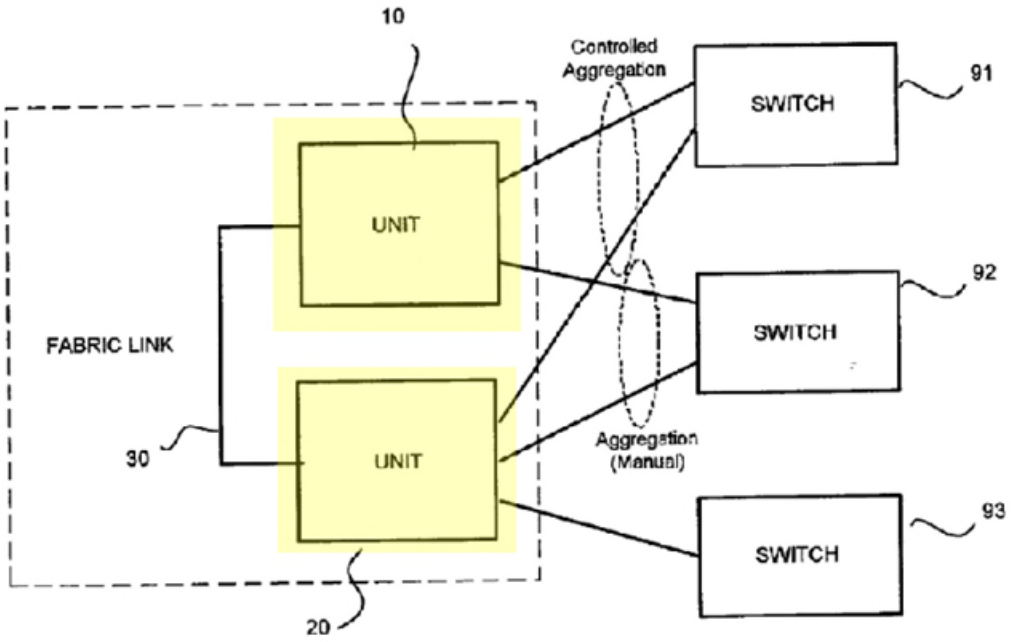
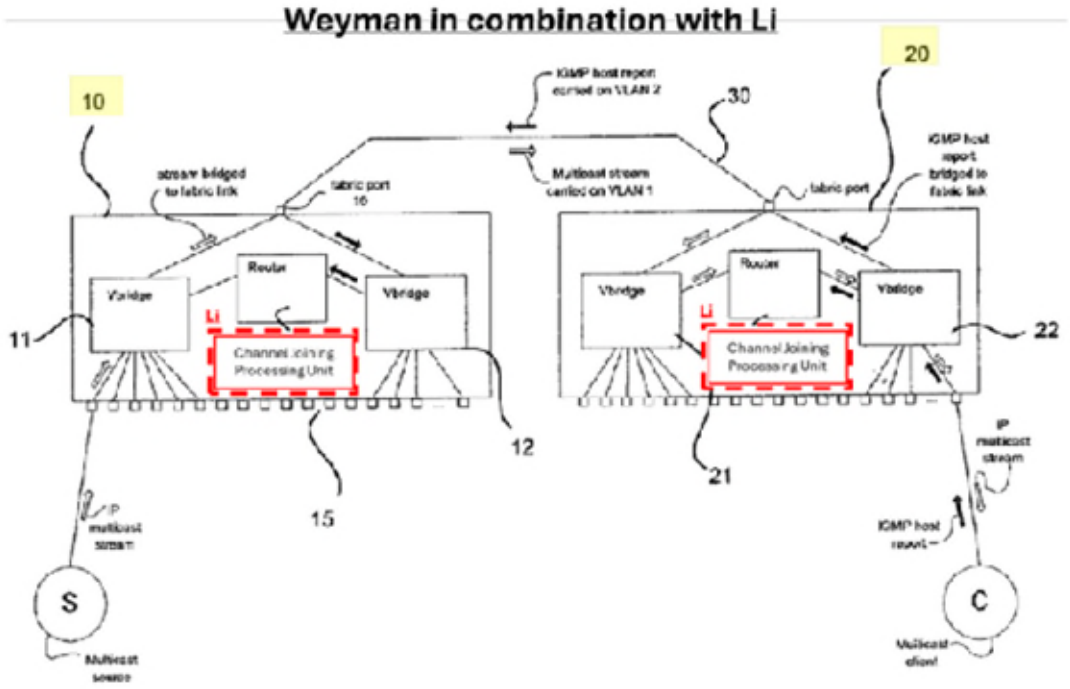


FIG.6

EX1005 at FIG. 6 (annotated).

Weyman's controlled aggregation links go from one switch (e.g., switch 91) to two different network units 10 and 20 (highlighted in yellow). *Id*. at FIG. 6; *see*

also EX2001 at ¶ 51. Network units 10 and 20 are the same network units as shown in Petitioner's Weyman-Li figure, as shown below (highlighted in yellow):



EX1002 at ¶ 105 (annotated).

However, the combined system of Weyman and Li would not appear as disclosed in Petitioner's Weyman-Li figure. *See* EX2001 at ¶ 52. Rather, the combined system of Weyman and Li would instead appear as below based on Weyman's teachings:

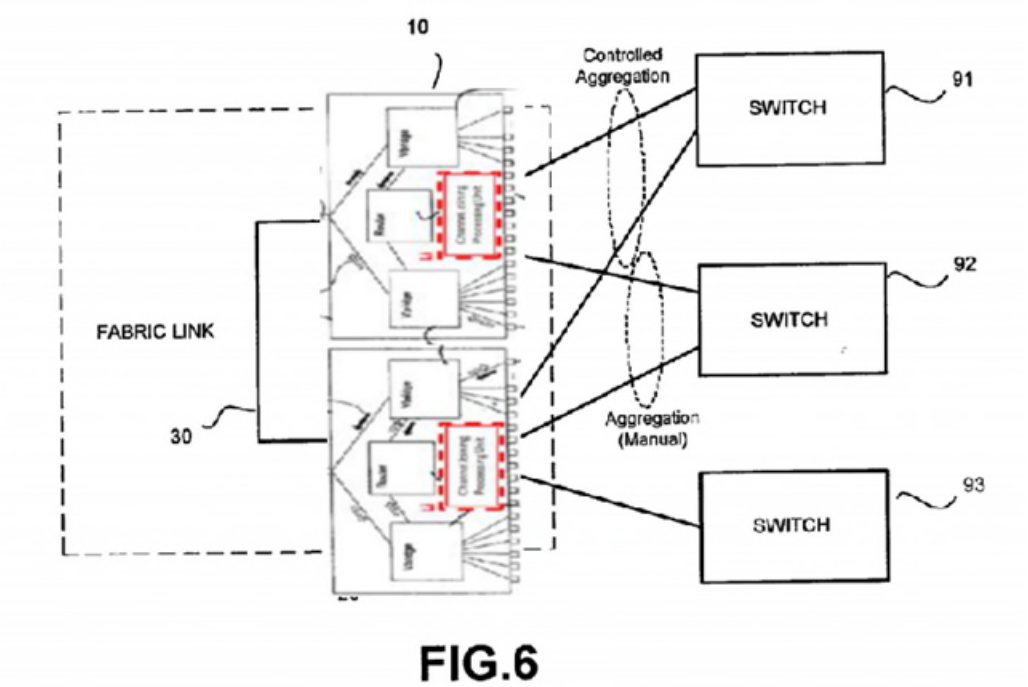


FIG.6

EX1005 at FIG. 6 (modified).

In the modified figure above, the network units 10 and 20 in Weyman Figure 6 are replaced with units 10 and 20 as shown in the Petitioner's proposed Weyman-Li figure. *See* Petition at 22; EX2001 at ¶ 53. Because the controlled aggregation links go to both network units 10 and 20, the IGMP host report message would not go to only a single port on network 20 as shown in the Weyman-Li figure. *See* EX2001 at ¶ 53. Rather, the IGMP report message may go to either unit 10 or unit 20, as shown below:

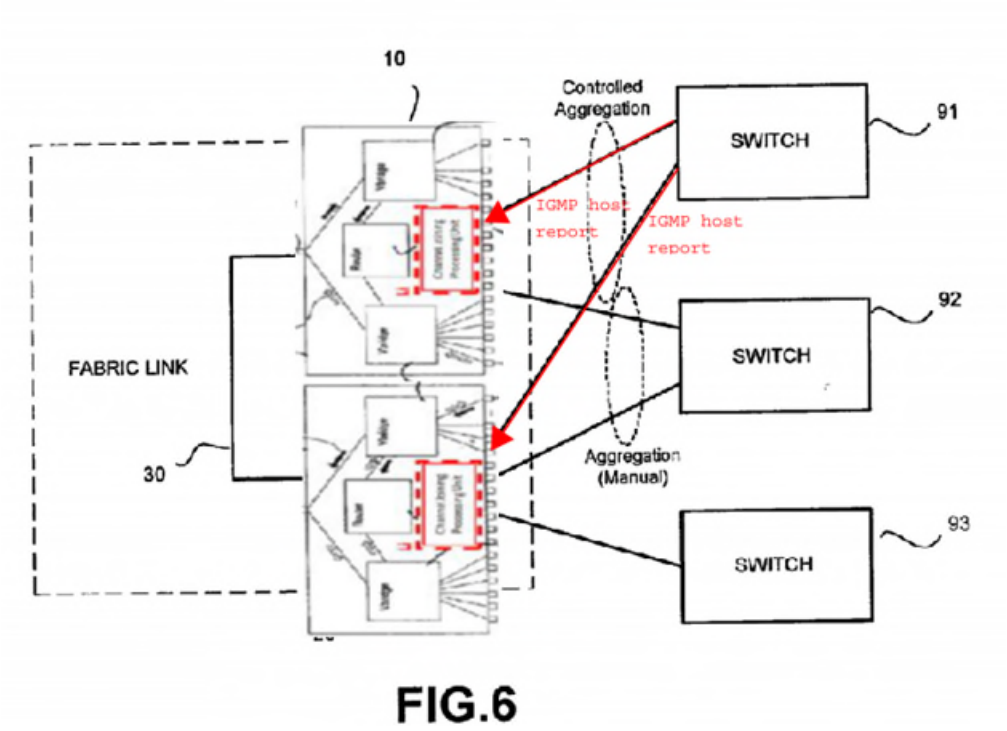


FIG.6

EX1005 at FIG. 6 (modified); *see also* EX2001 at ¶ 54.

An IGMP host report message may travel from a switch (e.g., switch 91) to either of network units 10 and 20. EX2001 at ¶ 54. Because packets may be distributed in a number of ways under link aggregation, there is no way to determine which network unit will receive a particular IGMP report message beforehand. *Id.* at 55; *see also* EX1025 at 7:15–51. Therefore, the receipt of an IGMP report message on either of the two network units 10 and 20 must be coordinated. *See* EX2001 at ¶ 55. Coordinating the reception of the IGMP report messages at two different network units requires using additional bandwidth on the fabric link. *See id.* However, Weyman is clear that an object of the invention is to minimize the usage of bandwidth on the links between fabrics. EX1005 at [0005] ("A further

object of the invention is to minimise the usage of bandwidth on links between the units of such a fabric."). Therefore, incorporating Li's channel joining processing unit in each network unit in Weyman contradicts Weyman's teachings. *See* EX2001 at ¶ 55.

The issue regarding increased bandwidth usage is also apparent through Li's teachings. *See* EX2001 at ¶ 56. For example, Li discusses the use of multicast quitting and multicast joining messages with respect to the operation of the channel joining processing unit. *See* EX1007 at 80:6–22; EX2001 at ¶ 56. Li's channel joining processing unit requires receiving multicast joining messages from each of the set-top box devices (STBs). *See* EX1007 at 97:18–22; EX2001 at ¶ 56. Li also requires that the join or quit messages from each STB is coordinated. *See* EX1007 at 99.

As discussed above in connection with Petitioner's Weyman-Li figure, there is no guarantee that the same network channel joining processing unit on one network unit will receive every message because multicast joining messages may go to any network unit connected to the controlled aggregation links. *See* EX2001 at ¶ 56. Given that the different STBs will have different IP addresses and different MAC addresses, there is a strong likelihood that the multicast joining messages will be received by different network units. *Id*. As a result, these messages must be coordinated between the two network units in the combined Weyman-Li system in

order for the channel joining processing unit of Li to operate properly. *Id*. Such coordination requires increased bandwidth usage on the fabric, which contradicts Weyman's teachings. *See* EX1005 at [0005]; EX2001 at ¶ 56. Contrary to the Petition's assertions, combining Weyman and Li will not remove the need for global control and will not control the assignment of multicast streams to ports locally at each unit. *See* EX2001 at ¶ 56, 58.

Accordingly, a POSITA would not have been motivated to combine Weyman and Li. *See* EX2001 at ¶¶ 45, 55, 58.

B. Independent Claim 1

As explained in section II.A, the combination of Weyman and Li fails to render obvious the challenged claims because a POSITA would not have modified Weyman to incorporate Li's channel joining processing unit. *See supra* section II.A; *see also* EX2001 at ¶ 59. Further discussed below are particular reasons why Weyman and Li fail to render obvious claim 1.

1. Weyman and Li do not teach aggregating ports by "setting an upper limit on a number of the multicast packet streams that are permitted for forwarding over the high-capacity port" (claim limitation 1k)

Claim 1 recites aggregating ports by "setting an upper limit on a number of the multicast packet streams that are permitted for forwarding over the high-capacity port." The Petition relies on Weyman and Li as allegedly disclosing setting an upper limit on the number of multicast packet streams that are permitted for forwarding

over the high-capacity port. *See* Petition at 45–46. In particular, the Petition relies on Li to disclose setting an upper limit on a number of the multicast packet streams. *See* Petition at 45. However, Petitioner's arguments fail. *See* EX2001 at ¶ 60.

Li discloses using an xDSL link. *See* EX1007 at 97:13–17 ("As illustrated in FIG. 9, in an IPTV access network, an access device 91 of a multicast service is a Digital Subscriber Line Access Multiplexer (DSLAM) functioning as a multicast router, and provides the user with a Digital Subscriber Line (xDSL) service port; and, at a user side, two set-top box (STB) devices 92 are connected with a same xDSL modulation and demodulation (modem) 94 through a HUB 93, and each STB is connected with a television set 90."). The xDSL link is always a single link because each end of the link contains a modem. *See* EX2001 at ¶ 61. The xDSL link therefore cannot be an aggregated link or a high-capacity port, and Li does not describe using a channel joining processing unit with an aggregated link. *Id.*

The Petition also states that [w]hen the multicast router receives a multicast join request, the Weyman/Li's channel joining processing unit determines whether the number of channels being forwarded at the port or aggregated link is below the maximum number of access channels allowable." Petition at 45. However, as discussed above in connection with section II.A, such determination is not possible because no single channel joining processing unit is guaranteed to receive both the

channel joining and channel quit messages. *See supra* section II.A; *see* EX2001 at ¶ 62.

The Petition also states that "each xDSL service port is configured with the ***maximum number of accessed multicast channels allowable***." Petition at 45 (citing EX1007 at 28:23–29:1). Petitioner therefore appears to compare Li's "channels" to the '394 Patent's "multicast packet streams," which is a mapping that Petitioner's expert confirms. EX2004 (Houh Dep. Tr.) at 28:11–14 ("I am mapping that, and it's because … the way Li discusses channels is very similar to the way the '394 patent discusses joining multicast packet stream …."); *see* EX2001 at ¶ 63. Such a comparison is improper. *Id.* at ¶ 64. Li's channels are content provider or program channels sent over an xDSL link. *See e.g.*, EX1007 at 97:13–17; *see also* EX2001 at ¶ 64. A POSITA would understand that such channels typically have multiple streams, including at least one video stream and at least one audio stream. EX2001 at ¶ 64. For example, U.S. Patent No. 8,516,531 ("'531 Patent"), which was published in 2007 as U.S. Patent Pub. No. 2007/0280298, discloses that program channels contain both video and audio multicast streams. *See* EX2005 ('531 Patent) at 6:26–33 ("A source video stream 202 received and/or propagated (Step A of FIG. 2) through network 102 (FIG. 1). In one embodiment, video stream 202 is a real-time multicast video stream which has been encoded for eventual transmission to a presentation device 116 via network 102. Video stream 202 typically contains

multimedia content corresponding to **a program channel, such as video and audio content of a content provider's channel**.") (emphasis added); 4:43-50 ("A decoder is first required to extract from an MPEG-2 transport stream a (1) program association table 'PAT' packet indicating the PID of a PMT; (2) a program map table 'PMT' packet, indicating the PIDs of **the video and audio streams**, and (3) a video sequence start code indicating the sequence resolution, frame rate, decoding matrices, etc., all prior to beginning to decode the first picture delivered to it.") (emphasis added). The '531 Patent also makes clear that the streams that make up the program channels correspond to multicast data streams. *Id*. at 1:19–23 ("Broadband providers (e.g., cable, satellite, DSL or fiber optic-to-home providers) often deliver a real-time broadcast of a digital **video multicast data stream (video stream)** to subscribers over an internet protocol (IP) network.") (emphasis added); *see also* EX2006 at [0037], [0026], [0003].

Different program channels correspond to different multicast packet streams. EX2001 at ¶ 65. Therefore, setting an upper limit on a number of program channels in Li is different than setting an upper limit to the number of multicast packet streams. Id. Accordingly, Petitioner fails to establish that Weyman and Li teaches or renders obvious aggregating ports by "setting an upper limit on a number of the multicast packet streams that are permitted for forwarding over the high-capacity port." *See* EX2001 at ¶ 65.

C. Independent Claim 11

As explained in section II.B.1, Weyman and Li fail to render obvious claim 1. *See supra* section II.B.1. Weyman and Li also fail to render obvious claim 11, and Petitioner's analysis for claim 11 fails, for the same reasons discussed in section II.B.1 regarding claim 1, as claim 11 is substantially similar to claim 1. That is, limitation 11j is substantially similar to limitation 1k. *See* EX2001 at ¶ 67. A comparison of the limitations 1k and 11j is provided below:

[1k] wherein aggregating the ports comprises setting an upper limit on a number of the multicast packet streams that are permitted for forwarding over the high-capacity port	[11j] wherein an upper limit is set on a number of the multicast packet streams that are permitted for forwarding over the high-capacity port, and

Petitioner expressly relies on its analysis of the limitations for claim 1 for purposes of analyzing the limitations of claim 11. *See* EX2001 at ¶ 68. For example, Petitioner solely cites to its analysis of limitation 1k for purposes of limitation 11j. Petition at 55. Therefore, Weyman and Li fail to render obvious claim 11 for the same reasons as claim 1. *See* EX2001 ¶ 68.

III. Ground 4: Weyman in View of Jain and LeMaire Does Not Render Obvious Claims 8 and 18

A. Independent Claim 8

1. Weyman, Jain, and LeMaire do not teach "deactivating the ports to which the new processing unit is assigned" (claim limitation 8k)

Claim 8 recites "deactivating the ports to which the new processing unit is assigned." The Petition relies on Weyman, Jain, and LeMaire as allegedly disclosing deactivating the ports of a new processing unit added to the network element. *See* Petition at 78. In particular, the Petition combines Jain's controlled boot-up process and LeMaire's initialization technique with Weyman's distributed router system to disclose deactivating ports on a new unit added to the distributed router. *See* Petition at 68–75, 78. However, Petitioner's arguments fail. *See* EX2001 at ¶ 60.

A POSITA would not have been motivated to combine Jain and LeMaire's teachings to Weyman's distributed router system because doing so would be impractical. EX2001 at ¶ 70.

Jain teaches to de-activate or de-energize all active links of the entire network node under conditions such as catastrophic failure, reset, power down or rebooting. EX1010 at [0019] ("When network node 102A is down for some reason, e.g., a **catastrophic switch software and/or hardware failure, reset, power down, rebooting**, etc., **its link port interfaces are deactivated or de-energized, including the device-side and network-side interfaces**.") (emphasis added). This is due to the fact that ports can exhibit spurious logic conditions that may cause the interfacing entities (e.g.., active links) "to commence network traffic while the **switch software (i.e., system software**) is still in an incomplete operational state." *Id*. (emphasis added); *see also* EX2001 at ¶ 70.

The Petition asserts that Jain's controlled boot-up process teaches disabling "at least some of the node's ports" and that a POSITA would be motivated to combine Weyman's distributed router with Jain's controlled boot-up process to disable some of the user ports. Petition at 69–70. However, the Petition's characterization of Jain's controlled boot-up process is inconsistent with Jain's own teachings, which teach deactivating ***all*** of the active ports in a network node while the system software is in an incomplete operational state. *See* EX1010 at [0019]; *see also* EX2001 at ¶ 71.

Additionally, Weyman teaches that fabric ports are ports which are connected internally to other units within the fabric and not externally. *See* EX1005 at [0025] ("fabric ports (i.e. ports connected only to other units within the fabric and not to the external network)."). In fact, Weyman teaches that the same port can be a fabric port or a user port. *Id*. at [0036] ("Alternatively, products may have dual purpose ports that may be configured to be either user ports or fabric ports."). Because there is no material difference between fabric ports and user ports, fabric ports would experience the same issues as the active ports of Jain, such as spurious logic conditions and various deleterious effects with respect to the integrity of the traffic when the new unit is powering-on or booting up. EX2001 at ¶ 73. Petitioner does not address how only the user ports and not the fabric ports would experience these issues. Therefore, a POSITA would not be motivated to combine Jain with Weyman

because a POSITA would understand that the fabric ports would also need to be de-activated, which would interfere with critical operations described in Weyman. *See* EX2001 at ¶ 73.

Petitioner's proposed combination of Weyman, Jain, and LeMaire also fails because LeMaire teaches the opposite of Jain. *See* EX2001 at ¶ 74. LeMaire teaches that on power-up or reset, ports should begin to transmit IGMP Query messages. EX1011 at 9:12–15 ("**On power up or system reset** or when none of its ports are designated as Router Ports, an improved bridge 62 according to the invention, **transmits IGMP Query packets at regular intervals out of each of its ports** A-E.") (emphasis added). When discussing LeMaire, Petitioner asserts that a POSITA would have found it obvious to combine LeMaire with the combined Weyman/Jain distributed router to initialize a new unit that is added to the distributed router. Petition at 73. However, LeMaire does not disclose the concept of user ports or other user ports. *See* EX2001 at ¶¶ 74–75. Instead, LeMaire teaches that all ports that are not router ports begin transmitting on system reset. *See* EX2001 at ¶ 74.

Additionally, the fabric port of the new processing unit would not be a router port. *See id.* at ¶ 76. As a result, the combined system of Weyman and LeMaire would involve IGMP Query messages going across the fabric link, resulting in increased bandwidth usage in the fabric. *See* EX2001 at ¶ 76. Increased bandwidth usage in the fabric conflicts with one of the express objects of Weyman, which is to

minimize bandwidth usage on the fabric links. *See* EX1005 at [0005]; *see also* EX2001 at ¶ 76.

A POSITA would therefore not combine Weyman, Jain, and LeMaire. *See* EX2001 at ¶ 77. Accordingly, the combination of Weyman, Jain, and LeMaire fails to teach "deactivating the ports to which the new processing unit is assigned" and Petitioner has failed to establish that claim 8 is rendered obvious *See id*. at ¶ 78.

B. Independent Claim 18

As explained in section III.A.1, Weyman, Jain, and LeMaire fail to render obvious claim 8. *See supra* section III.A.1. Weyman, Jain, and LeMaire also fail to render obvious claim 18, and Petitioner's analysis for claim 18 fails, for the same reasons discussed in section III.A.1 regarding claim 8, as claim 18 is substantially similar to claim 8. *See* EX2001 at ¶ 80. In fact, limitation 18j is the same as limitation 8k. *See* EX2001 at ¶ 81. A comparison of the limitations 8k and 18j is provided below:

[8k] deactivating the ports to which the new processing unit is assigned	[18j] deactivating the ports to which the new processing unit is assigned

Petitioner expressly relies on its analysis of the limitations for claim 8 for purposes of analyzing the limitations of claim 18. Petition at 82; *see* EX2001 at ¶ 68. For example, Petitioner solely cites to its analysis of limitation 8k for purposes

of limitation 18j. Petition at 55. Therefore, Weyman, Jain, and LeMaire fail to render obvious claim 18 for the same reasons as claim 8. *See* EX2001 ¶ 83.

IV. Dependent Claims

Dependent claims 2, 4–7, 9–10, 12, and 14–17 are non-obvious based on Petitioner's failure to establish obviousness of the underlying independent claims from which they depend, as explained in sections II.A and III.A.1. *See supra* sections II.A, III.A.1. Additionally, the limitations of specific dependent claims are discussed below.

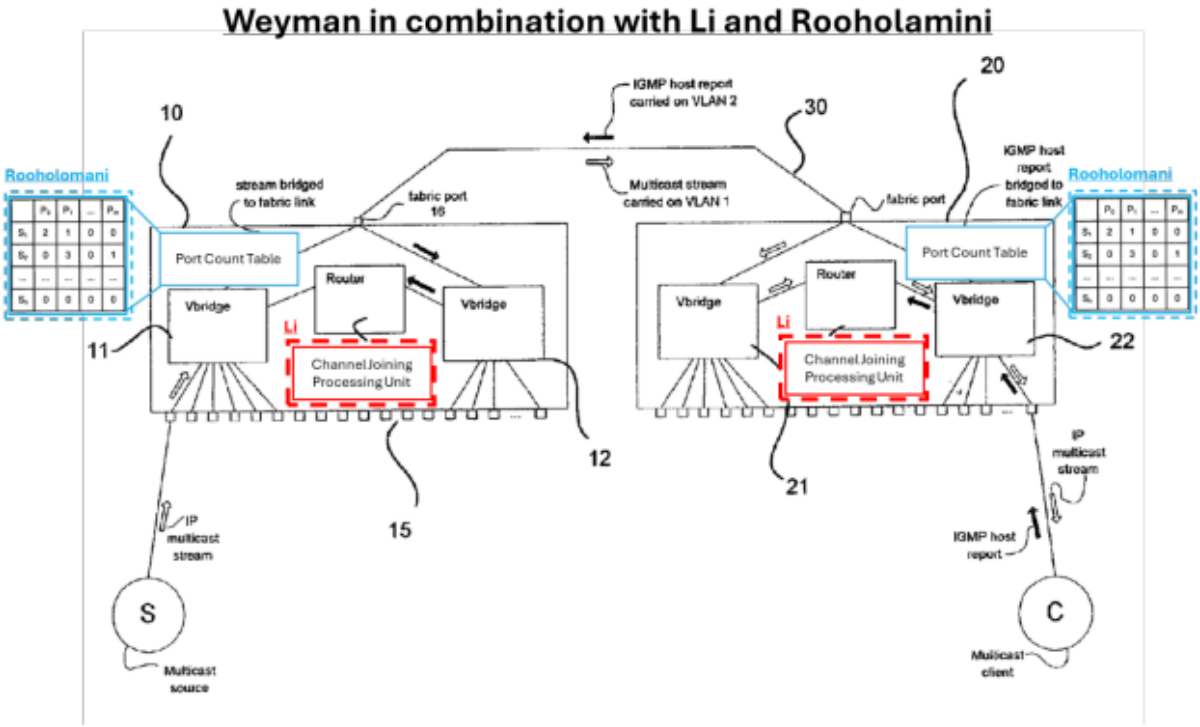
A. Weyman in View of Li and Rooholamini fails to teach or render obvious claims 5 and 15

Petitioner groups its arguments for claims 5 and 15 together. Petition at 56. For reference, a comparison of dependent claims 5 and 15 is provided below:

[5a] The method according to claim 1, wherein the ports forming the high-capacity port are assigned to at least two of the processing units, and	[15a] The network element according to claim 11, wherein the ports forming the high-capacity port are assigned to at least two of the processing units, and
[5b] wherein updating the list comprises holding respective local copies of the number of the multicast packet streams that are permitted for forwarding over the high-capacity port, updating the local copies based on the distributed request, and selectively updating the list in each of the at least two processing units based on the respective local copies.	[15b] wherein the at least two processing units are configured to hold respective local copies of the number of the multicast packet streams that are permitted for forwarding over the high-capacity port, to update the local copies based on the distributed request, and to selectively update their respective lists based on the respective local copies.

Petitioner relies on Weyman, Li, and Rooholamini for its analysis of claim limitations 5 and 15. *See* Petition at 61–64. A POSITA would not have been motivated to modify Weyman's teachings to incorporate Li's channel joining processing unit and Rooholamini's port count table. *See* EX2001 at ¶ 87. As discussed above in section II.A, a POSITA would not have been motivated to combine Weyman and Li. *See supra* section II.A; EX2001 at ¶ 86.

A POSITA would also not have been motivated to add Rooholamini to the combined Weyman/Li system. For example, the Petition discloses that Weyman's system should be modified as shown below:



The Petition's modified figure shows that Rooholamini's port count table is added to each unit in the Weyman/Li system. Doing so would once again force further synchronization efforts in the distributed router system because multicast messages traveling to each Vbridge need to be coordinated in some way. EX2001 at ¶ 87. A POSITA would understand that the additional synchronization efforts would lead to increased bandwidth usage in the fabric, which contradicts Weyman's teachings to minimize fabric bandwidth usage. *Id.* Therefore, a POSITA would not have been motivated to combine Weyman, Li, and Rooholamini. *See* EX2001 at ¶ 86–87. Accordingly, Weyman, Li, and Rooholamini fail to teach or render obvious dependent claims 5 and 15. EX2001 at ¶ 88.

V. Conclusion

For the foregoing reasons, Petitioner has not established that any challenged claims of the '394 Patent are obvious, and the Board should affirm the patentability of the challenged claims.

Respectfully submitted,

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CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the foregoing document contains 5,886 words, and thus complies with the word-count limits of 37 C.F.R. § 42.24.

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The undersigned hereby certifies that a copy of the foregoing PATENT OWNER'S RESPONSE was served on January 23, 2025 by filing this document through the P-TACTS platform as well as by delivering a copy via the delivery method indicated to the attorneys of record for the Petitioner as follows:

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