

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

ORCKIT CORPORATION,
Patent Owner.

IPR2023-00401
Patent 7,545,740 B2

Before KRISTEN L. DROESCH, NATHAN A. ENGELS, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

DROESCH, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Cisco Systems, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–31 of U.S. Patent No. 7,545,740 B2 (Ex. 1001, “’740 Patent”). Paper 2 (“Pet.”). Petitioner filed a Declaration of Henry Houh, Ph.D., with its Petition. Ex. 1003. Orckit Corporation (“Patent Owner”) timely filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 8, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 9, “Sur-reply”).

We have authority to determine whether to institute review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). An *inter partes* review may not be instituted unless it is determined that “the information presented in the petition filed under section 311 and any response filed under section 313 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.” 35 U.S.C. § 314(a).

For the reasons provided below, we determine, based on the record before us, there is a reasonable likelihood Petitioner would prevail in showing at least one of the challenged claims is unpatentable.

B. Related Matter

The parties identify *Orckit Corporation v. Cisco Systems, Inc.*, 2:22-cv-276 (E.D. Tex.) (“parallel district court proceeding”) as currently pending litigation. Pet. 89; Paper 3, 2.

C. Overview of the '740 Patent (Ex. 1001)

The '740 Patent “relates generally to communication networks, and particularly to methods and systems for link aggregation in network elements.” Ex. 1001, 1:5–7. “Link aggregation (LAG) is a technique by which a group of parallel physical links between two endpoints in a data network can be joined together into a single logical link (referred to as the ‘LAG group’).” *Id.* at 1:11–14.

“For Ethernet™ networks, link aggregation is defined by Clause 43 of IEEE Standard 802.3ad, Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications (2002 Edition), which [the '740 Patent] incorporate[s] . . . by reference.” Ex. 1001, 1:17–21. “Clause 43 defines a link aggregation protocol sub-layer, which interfaces between the standard Media Access Control (MAC) layer functions of the physical links in a link aggregation group and the MAC clients that transmit and receive traffic over the aggregated links.” *Id.* at 1:21–26. “The link aggregation sub-layer comprises a distributor function, which distributes data frames submitted by MAC clients among the physical links in the group, and a collector function, which receives frames over the aggregated links and passes them to the appropriate MAC clients.” *Id.* at 1:26–30.

“[T]wo or more physical user ports are aggregated into a LAG group external to the network element, so as to form an aggregated user port having a higher bandwidth.” *Id.* 2:5–8. “Upstream data frames sent from the user ports to the communication network and downstream data frames sent from the communication network to the user ports are distributed among the parallel physical links, so as to balance the traffic load among the links.” *Id.* at 1:48–52.

A “network element comprises one or more user interface modules (UIMs), each serving one or more user ports” and “[i]n some embodiments, each UIM is connected to the communication network using two or more physical links arranged in parallel.” Ex. 1001, 1:42–45. “[T]he UIMs are coupled to a backplane of the network element and the parallel physical links comprise backplane traces” and “are configured as an Ethernet. . . LAG[] group.” *Id.* at 1:56–60.

Unlike some known network element configurations, in which each user port is fixedly assigned to a specific backplane trace, the load balancing operation . . . of the present invention enables statistical multiplexing of the frames[whereby] there is no direct relationship or connection between user ports and backplane traces.

Id. at 1:66–2:4.

Figure 2 of the '740 Patent is reproduced below.

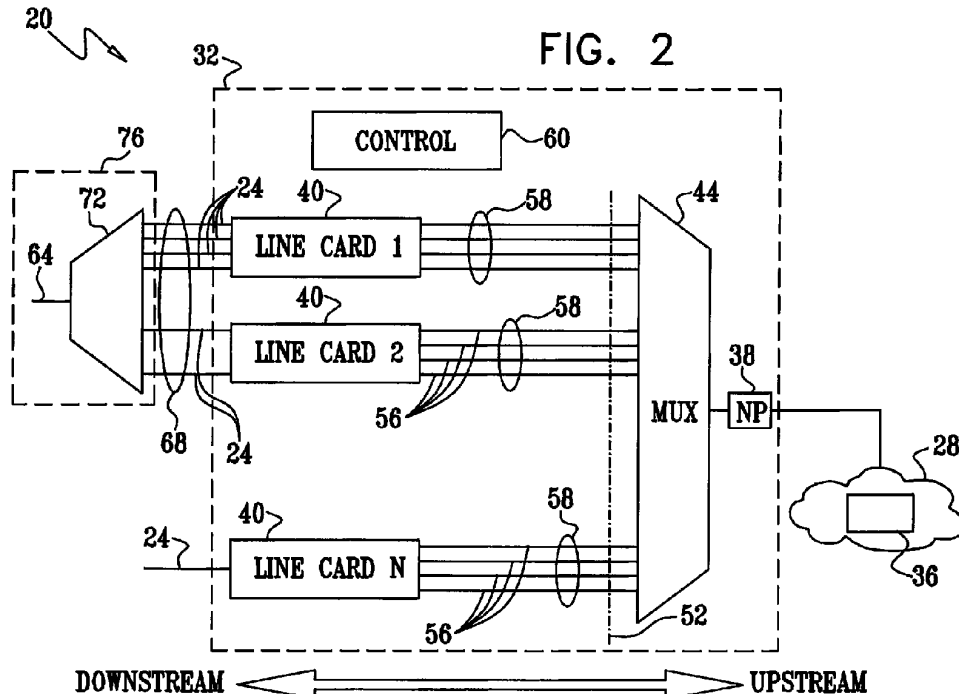


Figure 2 depicts a block diagram of communication system 20. *See* Ex. 1001, 3:55–57, 6:15–17. “System 20 interconnects a plurality of user

ports 24 to a communication network 28.” *Id.* at 4:5–8. “[S]ystem 20 provides data services to users via network element 32 . . . [and] us[ing] a Layer 2 communication protocol . . . in which data is transferred . . . using Ethernet frames.” *Id.* at 4:19–23. “[N]etwork element 32 . . . connects user ports 24 to a node 36 in network 28 . . . [and] via a network processor (NP) 38.” *Id.* at 4:12–14. “[A] number of user ports 24 are configured to form an aggregated user port 64” because “a particular user requires a bandwidth higher than the bandwidth of a single user port 24.” *Id.* at 6:17–21. “Network element 32 comprises one or more user interface modules (UIMs), such as line cards 40[, where e]ach . . . is assigned to process data frames of one or more user ports.” *Id.* at 4:28–30. “[B]ackplane 52 . . . distributes . . . the frames to and from line cards 40.” *Id.* at 4:32–33. “Backplane 52 comprises physical links such as backplane traces 56.” *Id.* at 4:34–35.

“A multiplexer (MUX) 44 is coupled to backplane traces 56.”
Ex. 1001, 4:38. “MUX 44 multiplexes upstream frames coming out of line cards 40 to produce an upstream output . . . provided to network processor 38 . . . [and] then sent by network processor 38 via a network connection 48 to network 28.” *Id.* at 4:38–43. “[N]etwork processor 38 . . . accepts . . . downstream frames addressed to user ports 24 from node 36” and “MUX 44 sends each frame to the appropriate user port via the appropriate line-card.” *Id.* at 4:43–48.

“Ethernet frames are statistically multiplexed so as to balance the load among the backplane traces.” *Id.* at 5:19–21. “[T]o achieve load balancing, each group of backplane traces belonging to a particular line card is configured as an Ethernet link aggregation (LAG) group 58” and “considered by the relevant line card and [MUX] 44 to be a single logical

link having an aggregated bandwidth (i.e., capacity) equal to the sum of the bandwidths of the individual backplane traces in the group.” *Id.* at 5:10–16. “As a result, there is no pre-assigned relationship or connection between any given user port 24 and a specific backplane trace 56.” *Id.* at 5:17–19. “Ethernet frames are mapped to individual backplane traces in the LAG group in accordance with a . . . mapping function [that] distributes the frames . . . so as to balance the load between the traces.” *Id.* at 5:22–26.

“User ports 24 forming port 64 are configured as an Ethernet LAG group[constituting] an external LAG group 68.” *Id.* at 6:21–23. “Thus, the bandwidth of port 64 is generally equal to the sum of bandwidths of the individual user ports 24 in external LAG group 68[and] in both upstream and downstream directions.” *Id.* at 6:23–26. “[A] particular line card 40 may have some of its user ports 24 assigned to an external LAG group and other user ports 24 used individually or assigned to another external LAG group.” *Id.* at 6:29–31.

D. Illustrative Claim

Claims 1, 4, 5, 13–15, 17, 19, 20, and 28–30 are independent, and remaining claims 2, 3, 6–12, 16, 18, 21–27, and 31 depend directly or indirectly therefrom, respectively. *See* Ex. 1001, 10:64–16:35. Claim 1 is reproduced below:

1. A method for communication, comprising:
 - coupling a network node to one or more interface modules
 - using a first group of first physical links arranged in parallel
 - at least one of said first physical links being a bi-directional link operative to communicate in both an upstream direction and a downstream direction;
 - coupling each of the one or more interface modules to a communication network using a second group of second physical links arranged in parallel, at least one of said second physical links being a bi-directional link operative to

communicate in both an upstream direction and a downstream direction;
receiving a data frame having frame attributes sent between the communication network and the network node;
selecting, in a single computation based on at least one of the frame attributes, a first physical link out of the first group and a second physical link out of the second group; and
sending the data frame over the selected first and second physical links,
said sending comprising communicating along at least one of said bi-directional links.

Ex. 1001, 10:65–11:20.

E. Asserted Patentability Challenges and Asserted Prior Art

Petitioner asserts that claims 1–31 are unpatentable on the following grounds (Pet. 21):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–31	103(a) ¹	Bruckman ²
1–31	103(a)	Bruckman, Basso ³
11, 26	103(a)	Bruckman, Holdsworth ⁴
11, 26	103(a)	Bruckman, Basso, Holdsworth

II. PATENT OWNER’S ARGUMENTS FOR DISCRETIONARY DENIAL

A. Discretion under 35 U.S.C. § 314(a)

Patent Owner contends the Board should exercise its discretion to deny institution under 35 U.S.C. § 314, citing the discretionary-denial factors articulated in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103 effective March 16, 2013. Because the ’740 Patent claims an effective filing date prior to March 16, 2013, we refer to the pre-AIA version of § 103.

² US 2004/022827 A1, published Nov. 18, 2004 (Ex. 1005).

³ US 2003/021068 A1, published Nov. 13, 2003 (Ex. 1006).

⁴ Holdsworth et al., *Digital Logic Design*, Elsevier Science, 2002 (ISBN 0 7506 45882) (Ex. 1007).

(PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). *See* Prelim. Resp. 42–57. More specifically, Patent Owner contends that consideration of the *Fintiv* factors weigh in favor of discretionary denial. *See* Prelim. Resp. 45–57; Prelim. Sur-reply 1. Petitioner disagrees. Pet. 79–83; Prelim. Reply 1.

Under § 314(a), the Director has discretion to deny institution of an *inter partes* review, and that discretion has been delegated to the Board. *See* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the Director.”); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1356 (2018) (“[Section] 314(a) invests the Director with discretion on the question whether to institute review” (emphasis omitted)); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

In *NHK Spring Co. v. Intrix-Plex Technologies, Inc.*, the Board denied institution relying in part on § 314(a) because the parallel district court proceeding was scheduled to finish before the Board reached a final decision. IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential). Following *NHK*, the Board articulated the following factors for consideration when determining whether to exercise discretion to deny institution in view of a parallel proceeding:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;

5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Fintiv at 5–6. “These factors relate to whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Id.* at 6. In evaluating these factors, we take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* (citing Patent Trial and Appeal Board Consolidated Trial Practice Guide November 2019, 58).

Subsequently, the Director issued additional guidance on the application of *Fintiv*. See Katherine K. Vidal, *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* (June 21, 2022)⁵ (“*Fintiv* Memo”). The application of this guidance is further guided by the precedential decisions of the Director in *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102, 49–50 (Oct. 4, 2022) (precedential) and *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 (Feb. 27, 2023) (precedential) (“*CommScope*”). Accordingly, we are instructed to consider compelling merits under the sixth *Fintiv* factor only after a determination that the first five *Fintiv* factors favor discretionary denial. *CommScope*, 4–5.

“Compelling, meritorious challenges are those in which the evidence, if un rebutted in trial, would plainly lead to a conclusion that one or more

⁵ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

claims are unpatentable by a preponderance of the evidence.” *Fintiv* Memo 4.

For the reasons that follow, although we find that the considerations of the first five *Fintiv* factors weigh in favor of denying institution in this case, we determine that the Petition presents compelling merits as to the challenged claims, and thus, we decline to exercise our discretion to deny the Petition.

1. Factor 1: Whether the Court Granted a Stay

Patent Owner contends that Petitioner’s motion to stay filed in the parallel district court proceeding was promptly denied, which strongly favors discretionary denial. *See* Prelim. Resp. 45–46 (quoting Ex. 2004, 1; citing Ex. 2005, 3). According to *Fintiv*, the existence of a district court stay pending Board resolution of an *inter partes* review has weighed strongly against discretionary denial, although a denial of such a request sometimes weighs in favor of discretionary denial. *Fintiv* at 6–8. Due to the denial of Petitioner’s motion to stay in the parallel district court proceeding, we determine that the considerations of the first *Fintiv* factor weigh in favor of discretionary denial.

2. Factor 2: Proximity of Trial Date

Patent Owner asserts that the second *Fintiv* factor weighs heavily in favor of discretionary denial because trial in the parallel district court proceeding is scheduled to begin March 4, 2024 and a final written decision is expected no later than September 13, 2024. *See* Prelim. Resp. 46 (citing Ex. 2001, 1). Patent Owner further indicates that the most recent statistics indicate a time-to-trial in the Eastern District of Texas of 19 months, and using these statistics, the projected trial date would be around

February 2024, which is roughly 7 months before an expected final written decision. *See id.* at 47–48.

Petitioner disagrees with Patent Owner’s assertion that the second *Fintiv* factor weighs heavily in favor of discretionary denial. *See* Prelim. Reply 1. According to Petitioner, the second *Fintiv* factor “is [] not generally given heavy weight in the overall *Fintiv* analysis.” *Id.* (quoting *Microsoft Corp. v. WSOU Investments, LLC*, IPR2021-00930, Paper 8 at 6 (Dec. 2, 2021); citing *PEAG LLC v. Varta Microbatter GmBH*, IPR2020-01214, Paper 8 at 19–20 (Jan. 6, 2021)).

In response, Patent Owner contends that Petitioner understates the weight given to the second *Fintiv* factor, and asserts that although it is not dispositive alone, it is given substantial weight in the analysis. *See* Prelim. Sur-reply 1 (quoting *Fintiv* Memo 8). Patent Owner further argues that Petitioner’s cited cases are distinguishable because both cases are COVID-era opinions that address trial dates from district court scheduling orders, rather than time-to-trial statistics. *See id.* (quoting *WSOU* at 9, *PEAG* at 19–20).

Due to the projected trial date based on time-to-trial statistics and the actual trial date being more than six months before an expected final written decision, we determine that the considerations of the second *Fintiv* factor weigh in favor of discretionary denial.

3. Factor 3: Investment in the Parallel Proceeding

Petitioner contends that the third *Fintiv* factor favors institution because the parallel district court proceeding is in its very early stages and the investment in it has been minimal. *See* Pet. 81. Petitioner also asserts that it only learned which claims were being asserted on November 3, 2022,

and promptly filed its Petition thereafter, which weighs against discretionary denial. *See id.* (quoting *Fintiv* at 11).

Patent Owner asserts that the third *Fintiv* factor favors denial of institution because significant work in the parallel district court proceeding has already taken place, noting that the parties have produced over 2.4 million pages of discovery and that infringement contentions and invalidity have been served and supplemented several times. *See* Prelim. Resp. 49–50 (citing Exs. 2002, 2003, 2007, 2011, 2012, 2014, 2015–2020). Patent Owner contends that by the time of institution, discovery will be nearly complete, and the Markman hearing is scheduled for September 7, 2023. *See id.* at 50–51 (citing Ex. 2001, 3–4). Patent Owner further contends that Petitioner waited almost six months to file its Petition on January 9, 2023, after the litigation was filed on July 22, 2022. *See id.* at 51. According to Patent Owner, “[t]here was nothing preventing Petitioner from filing a Petition challenging all claims much earlier.” *Id.*

After consideration of the substantial investment in the parallel district court proceeding by the parties and district court, and Petitioner’s filing of its Petition on January 9, 2023, five months after the parallel district court case was filed on July 22, 2022, we determine that the considerations of the third *Fintiv* factor weigh in favor of discretionary denial.

4. Factor 4: Overlap Between the Issues Raised in the Petition and in the Parallel Proceeding

Patent Owner contends that the fourth *Fintiv* factor weights in favor of denying institution because each claim at issue in the parallel district court proceeding is at issue in the Petition, and the primary reference Bruckman and Basso are identified in the Petitioner’s invalidity contentions. *See*

Pet. 51–52 (citing Ex. 2014, 9; Ex. 2017, 969–1237). Petitioner filed the following stipulation:

If the Board institutes trial, Petitioner will cease asserting in the co-pending litigation the combination of references on which trial is instituted for the claims on which trial is instituted, to the extent Petitioner even asserts the same combination in the litigation against it.

Paper 6, 2. Patent Owner contends that this stipulation is a *Sand Revolution* – style stipulation, which the Board has routinely found to weigh only marginally in favor of not exercising discretion to deny institution. *See* Prelim. Resp. 52 (case citations omitted).

Although Petitioner’s proposed stipulation mitigates to some degree the concerns of duplicative efforts between the parallel district court proceeding and this proceeding, as well as concerns of potentially conflicting decisions, we find that the proposed stipulation does not fully allay such concerns. In other words, the proposed stipulation alleviates to some degree concerns of duplicative efforts and potentially conflicting decisions, but it does not eliminate them. *See Sand Revolution II LLC v. Continental Intermodal Group–Trucking LLC*, IPR2019-01393, Paper 24 at 12 (PTAB June 16, 2020) (informative)). Accordingly, we determine the considerations of the fourth *Fintiv* factor weigh only marginally against discretionary denial.

5. Factor 5: Whether the Petitioner and Defendant Are the Same Party

Patent Owner contends that there is no dispute that Petitioner and defendant in the parallel district court proceeding are the same. *See* Prelim. Resp. 55; *see also* Pet. 82 (acknowledging the same). Patent Owner contends that this factor weighs in favor of discretionary denial. *See* Prelim. Resp. 55. Given that the Petitioner is the same as the defendant in the

parallel district court proceeding, we determine the considerations of the fifth *Fintiv* factor weigh in favor of discretionary denial.

6. Factor 6: Other Circumstances, Including the Merits

Petitioner asserts “[t]he evidence of unpatentability is compelling” because the Petition “plainly shows that the ’740 patent claims no more than known concepts of bi-directional link aggregation.” Pet. 82–83 (quoting *Fintiv* Memo 2, 4). Patent Owner contends that the sixth *Fintiv* factor weighs in favor of denial of institution because “the merits of Petitioner’s arguments are weak.” Prelim. Resp. 56. “In particular, [Patent Owner argues that] neither Bruckman nor Basso teach selection of a second physical link from a group as required by claims 1, 4, 5, 13, 17, 19, 20, and 28” and “selecting a backplane trace as required by independent claims 14, 15, 29, and 30” “because each port is connected to only one second physical link.” *Id.*

We agree with Petitioner that the Petition presents compelling merits at least as to unpatentability of claim 1 over Bruckman. As part of our analysis below in Section III.D.2, we first discuss the merits of the Petition under the standard required for institution and then discuss our conclusion that the merits are compelling. *See infra* § III.D.2.h.

7. Conclusion

Under the Director’s guidance, we cannot “discretionarily deny institution in view of parallel district court litigation where a petition presents compelling evidence of unpatentability.” *Fintiv* Memo 2. Because that is the case here, as explained below in Section III.D.2.h., we determine that we should not exercise discretion to deny institution in this proceeding under 35 U.S.C. § 314(a).

B. Discretion under 35 U.S.C. § 325(d)

In evaluating arguments under § 325(d), we use

[a] two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of [the] first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”); *see also Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph) (listing factors to consider in evaluating the applicability of § 325(d)) (“*Becton, Dickinson*”).

Under *Advanced Bionics*, *Becton, Dickinson* factors (a), (b), and (d) are to be considered in the evaluation of whether the same or substantially the same art or arguments were previously presented to the Office.

Advanced Bionics at 10. *Becton, Dickinson* identifies these factors as:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination; and
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art.

Becton, Dickinson at 17–18. If the first part of the *Advanced Bionics* framework is satisfied, we turn to the second part where *Becton, Dickinson* factors (c), (e), and (f) are considered in the evaluation of whether the petitioner has demonstrated that the Office erred in a manner material to the

patentability of challenged claims. *Becton, Dickinson* identifies these factors as:

- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (e) whether petitioner has pointed out sufficiently how the examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson at 17–18.

“Under the first prong of the *Advanced Bionics* framework, Petitioner acknowledges that Bruckman was ‘previously presented to the Office.’” Pet. 83 (quoting *Advanced Bionics* 7–8); *see also* Prelim. Resp. 36 (citing Ex. 2009, 41, 44, 55), 38–39 (citing Ex. 1002, 54). In any event, Patent Owner contends that Bruckman, Basso, and Holdsworth are cumulative of the Akahane reference relied upon in an Examiner’s rejection. *See* Prelim. Resp. 37–38 (quoting Ex. 2008, 1:9–13; Ex. 1006 ¶ 1).

Because Petitioner acknowledges that the same or substantially the same prior art was previously presented to the Office, we agree that the first part of the framework is satisfied as to Bruckman. Accordingly, we turn to the second part of the framework to resolve whether Petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Petitioner contends, “the evidence shows that the Examiner ‘erred in a manner material to the patentability of challenged claims.’” Pet. 83 (quoting *Advanced Bionics* at 7–8). More specifically, according to Petitioner,

Bruckman was never cited in a rejection. Bruckman was introduced to the record after the Examiner had allowed several dependent claims, and after the Applicant had amended various

independent claims to gain allowance. Just days after the examiner signed an IDS listing Bruckman, the Office mailed a Notice of Allowance for all claims with no statement of reasons for allowance.

Pet. 84 (citing Ex. 1002, 40, 44). Petitioner further asserts, “[t]he sparse references to Bruckman in the file history indicate that Bruckman received—at most—only insufficient, cursory attention during prosecution.”

Pet. 84–85 (citing *Navistar, Inc. v. Fatigue Fracture Tech., LLC*, IPR2018-00853, Paper 13 at 17 (Sept. 12, 2018)). Petitioner contends that “the Office’s underdeveloped consideration of Bruckman was ‘material error’ because it overlooked Bruckman’s description of how data is both passed from the communication network to the customer nodes . . . and passed from the customer nodes to the communication network.” Pet. 85 (citing Ex. 1005 ¶¶ 58, 65). According to Petitioner, “explains that the links may be ‘full-duplex’ Ethernet links, which a POSITA would have understood to mean that they are capable of transmitting data in both directions simultaneously.” *Id.* (citing Ex. 1005 ¶ 47; Ex. 1009). Petitioner asserts that “[b]y allowing claims based on limitations that were taught in the cited art of record—including the specific limitations the examiner had previously deemed allowable—the Office overlooked teachings that had a significant impact on patentability.” Pet. 86 (quoting *Advanced Bionics* at 8 n.9, 10–11). Finally, Petitioner contends the Petition is supported by Dr. Houh’s Declaration explaining how a POSITA would have understood Bruckman and the obviousness of combining its teachings with those of Basso and Holdsworth, which Petitioner asserts weighs against discretionary denial. Pet. 86–87 (quoting *Puma N. Amer. Inc. v. Nike, Inc.*, IPR2019-01058, Paper 10 at 19 (Oct. 31, 2019); citing Ex. 1003, 1004).

Patent Owner asserts that “this is not a case where the asserted reference was buried among numerous other references. . . . Here, the applicant specifically called out a rejection from the prosecution of a similar application with similar claims that used Bruckman as the primary reference.” Prelim. Resp. 40 (citing Ex. 1002, 54). According to Patent Owner, “the examiner . . . reviewed a rejection over Bruckman over similar claims in . . . applicant’s co-pending application,” and “was aware of both Bruckman and its related rejection and still allowed the claims of the ’740 Patent.” *Id.* at 38–39 (Ex. 1002, 54; Ex. 2009), 40 (citing Ex. 1002, 54); *see also id.* at 36 (similar argument, citing Ex. 1002, 54–55). Patent Owner asserts that the then-pending claims of the co-pending application were similar to certain claims of the ’740 Patent in that they claimed selecting ports from a link aggregation group. *See id.* at 39–40 (reproducing Ex. 2010, 1). According to Patent Owner, “[t]he examiner did not err in allowing the claims where Bruckman clearly does not disclose several claim limitations.” *Id.* at 41. Finally, Patent Owner contends that “Petitioner . . . provides no specifics as to how [its expert] declaration adds any new evidence that was not cumulative of the prior art in front of the examiner and previously discussed by the Office.” *Id.* at 42 (citing Pet. 86–87).

The framework provided by *Advanced Bionics* and *Becton, Dickinson* “reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Advanced Bionics*, Paper 6 at 9. Based on the particular facts presented here, Petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims. Other than the Information Disclosure Statement listing a co-pending application and Bruckman, it is unclear the extent to which Bruckman was evaluated during prosecution. The parties’ arguments

opining as to the extent of the Examiner's evaluation of Bruckman are mere speculation. We have considered the extent to which Bruckman was previously evaluated in view of Petitioner's assertion of material error by the Examiner, as well as Petitioner's additional evidence, pursuant to *Becton, Dickinson* factors (c), (e), and (f), and we are persuaded that considering the merits of Petitioner's arguments regarding Bruckman is appropriate under the circumstances presented here.

For the foregoing reasons, we decline to exercise our discretion under 35 U.S.C. 325(d) to deny institution.

III. ANALYSIS

A. Claim Construction

In an *inter partes* review proceeding, the Board applies the same claim construction standard as that applied in federal courts in a civil action under 35 U.S.C. § 282(b), which is generally referred to as the *Phillips* standard. *See* 37 C.F.R. § 42.100(b); *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Under the *Phillips* standard, “words of a claim ‘are generally given their ordinary and customary meaning.’” *Phillips*, 415 F.3d at 1312.

Petitioner asserts “[t]he ’740 patent explicitly contemplates that a line card is within the scope of the term *interface module*.” Pet. 19 (quoting Ex. 1001, 4:28–29). According to Petitioner, “[a] line card is thus an interface module as claimed.” *Id.* (citing Ex. 1003 ¶ 33).

Petitioner contends that “single computation” in the claim phrase “selecting, in a single computation” “does not refer to performing the *selecting* process in a single step, but rather to a single computational result of a hashing function (e.g., single value) that *selects* the outcome.” *See*

Pet. 19–20 (citing Ex. 1001, 5:29–31). Petitioner asserts that the ’740 Patent and claims 8–10 describe a multi-step selecting process in Figure 4 that includes determining a hash size, calculating a hash key, and determining a mapping step. *See* Pet. 19 (quoting Ex. 1001, claims 8–10; citing Ex. 1001, Fig. 4). According to Petitioner, “the single value, or the final processing step that produces that single value, are examples of a ‘*single computation*.’” Pet. 20 (citing Ex. 1001, 5:29–31; Ex. 1003 ¶¶ 34–36).

Patent Owner asserts that “[n]either [‘interface module’ nor ‘selecting, in a single computation’] appears necessary to construe for this Preliminary Response, and for purposes of this Preliminary Response only, P[atent] O[wner] proposes no express constructions.” Prelim. Resp. 19. Patent Owner also asserts the ’740 Patent is not limited to the disclosed single embodiment that Petitioner presents in support of the proposed construction for “single computation.” *Id.* at 20 (quoting Pet. 19–20; Ex. 1001, 7:60–8:5, citing Ex. 1001, 8:10–14).

As demonstrated in the analysis below, at this stage of the proceeding, we need not construe any claim terms and phrases to resolve the controversy before us. *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))).

B. Level of Ordinary Skill in the Art

Petitioner asserts that “[a] person of ordinary skill in the art (POSITA) in April 2006 would have had a working knowledge of computer networking, including such commonly used technologies as Ethernet and the internet protocol / transmission control protocol (TCP/IP) suite.” Pet. 18

(citing Ex. 1003 ¶¶ 7–9). Petitioner further asserts that “[a] POSITA would have had a bachelor’s degree in electrical engineering, or an equivalent, and two years of professional experience in the field of communication networks, including link aggregation in communication networks.” *Id.* (citing Ex. 1003 ¶¶ 7–9).

Patent Owner asserts:

For purposes of this Preliminary Response only, Patent Owner does not dispute Petitioner’s definition, except (1) other majors, such as computer engineering, telecommunication engineering, computer science and other similar majors could also be appropriate backgrounds and (2) a POSITA with two years of experience in the field of communication networks would not necessarily have experience in “link aggregation.”

Prelim. Resp. 21.

For the purpose of determining whether to institute trial, we adopt Petitioner’s definition of a person of ordinary skill in the art because it is consistent with the level of skill reflected by the ’740 Patent Specification and the asserted prior art.

C. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level

of skill in the art; and (4) if in evidence, so-called secondary considerations.
Graham v. John Deere Co., 383 U.S. 1, 17–18 (1966).⁶

D. Patentability Challenge Based on Bruckman

1. Overview of Bruckman (Ex. 1005)

Bruckman is directed to “link aggregation in a data communication network,” and more specifically, “bandwidth allocation in a link aggregation system to ensure that sufficient bandwidth will be available on the links in the group in order to meet service guarantees, notwithstanding load fluctuations and link failures.” Ex. 1005 ¶¶ 1, 15.

Figure 1 of Bruckman is reproduced below.

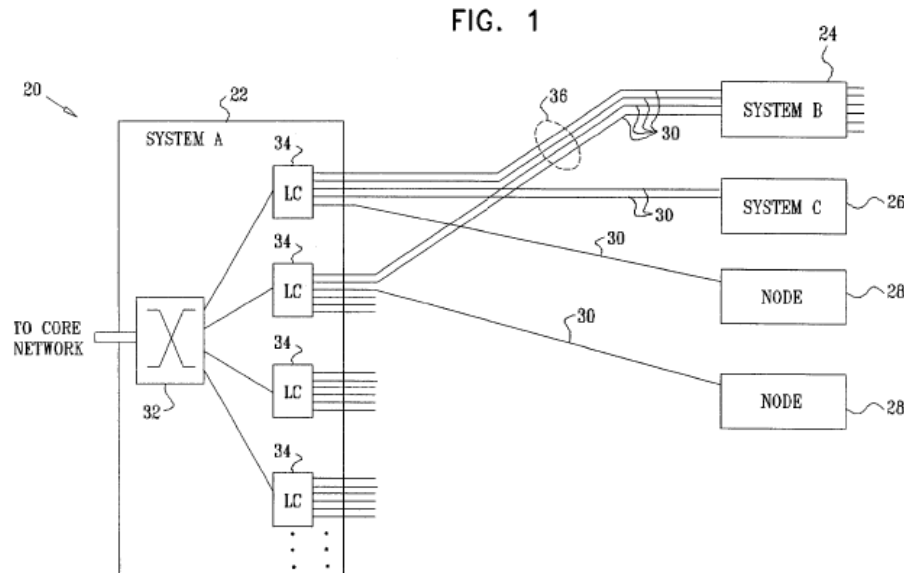


Figure 1 depicts a block diagram illustrating network communication system 20 with link aggregation. Ex. 1005 ¶¶ 44, 47. System 20 includes central office equipment 22 that is configured to convey packet data traffic and communicate with customer nodes 24, 26, 28 over full duplex Ethernet links 30. *See id.* ¶ 47. Equipment 22 comprises main switching card 32

⁶ At this stage, the parties do not present evidence or arguments regarding secondary considerations.

connected to multiple line cards 34 serving links 30. *See id.* “Equipment 22 and certain nodes 24 and 26, are configured to serve as aggregation systems in accordance with . . . Clause 43 of the 802.3 standard.” *Id.* ¶ 48. “[A]n aggregation group 36 of four physical links is defined between equipment 22 and node 24.” *Id.* “Another aggregation group of two physical links may be defined between equipment 22 and node 26.” *Id.*

Figure 2 of Bruckman is reproduced below.

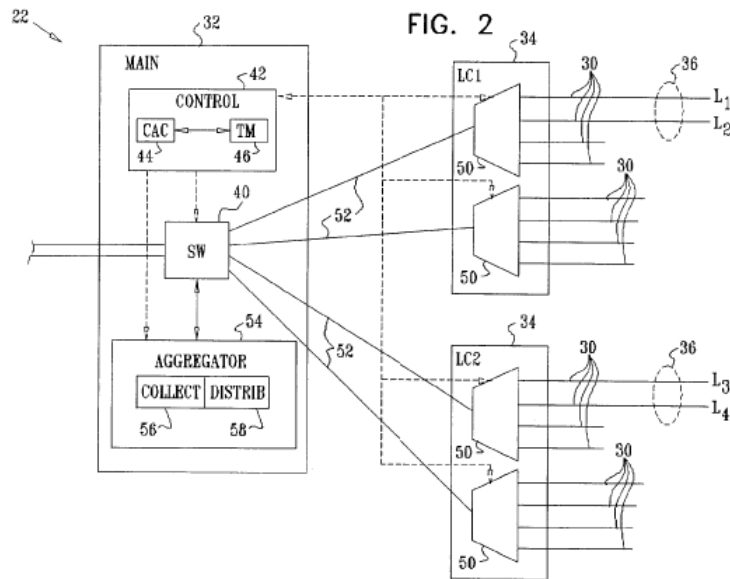


Figure 2 depicts a block diagram detailing equipment 22. *See Ex. 1005* ¶ 48. Equipment 22 comprises main card 32 which comprises switching core 40 that switched traffic to and from two line cards 34 (LC1 and LC2). *See id.* ¶ 49. Controller 42 manages switch 40. *See id.* Connection Admission Control entity (CAC) 44 is a software process running on controller 42 that manages the allocation of bandwidth in equipment 22 to ensure all connections between equipment 22 and customer nodes 24, 26, 28 receive the amount of guaranteed bandwidth to which they are entitled, and allocate excess bandwidth. *See id.* ¶ 50. Traffic manager (TM) 46 is a software process running on controller 42 that receives information regarding the

operational status of links 30. *See id.* ¶ 56. Aggregator 54 is a software process running on controller 42 that controls the link aggregation functions performed by equipment 22. *See id.* ¶ 57.

“Each line card 34 comprises one or more concentrators 50, which comprise multiple ports that serve respective links 30.” Ex. 1005 ¶ 56. Concentrators 50 “multiplex data traffic between links 30 and traces 52, which connect the concentrators to switching core 40.” *Id.* “[M]ain card 32 and line cards 34 are arranged in a card rack and plug into a printed circuit back plane . . . which comprises traces 52.” *Id.* “To prevent overloading of traces 52, concentrators 50 may limit the rate of incoming data admitted on each link 30 so that it remains between a predetermined minimum . . . and a maximum.” *Id.*

Aggregator 54 further comprises collector 56, which collects data frames that were received over different links 30 in group 36, and arranges the frames back into a single traffic stream. *See* Ex. 1005 ¶ 65. Aggregator 54 also comprises a distributor 58, which distributes data frames arriving from the network among links 30 in aggregation group 36 and determines the link over which to send each frame by applying a predetermined hash function to the header information. *See id.* ¶ 58. “[T]he hash function satisfies the following criteria: [(1)t]he hash value output by the function is fully determined by the data being hashed, [such] that frames with the same header will always be distributed to the same link[; (2) t]he hash function uses all the specified input data from the frame headers[; (3) t]he hash function distributes traffic in an approximately uniform manner across the entire set of possible hash values[; and (4) t]he hash function generates very different hash values for similar data.” *Id.* ¶¶ 58–62.

Table 1 of Bruckman is reproduced below.

TABLE I	
DISTRIBUTOR HASH FUNCTION	
<pre>unsigned short hash(unsigned char *hdr, short lagSize) { short i; unsigned short hash=178; // initialization value for (i=0; i<4; i++) // hdr is 4 bytes length hash = (hash<<2) + hash + (*hdr>>(i*8) & 0xFF); return (hash % lagSize) }</pre>	

Table 1 shows an example hash function. *See* Ex. 1005 ¶ 63. In Table 1, “hdr is the header of the frame to be distributed,” and “lagsize is the number of active ports (available links 30) in link aggregation group 46.” *Id.* ¶ 64.

“Normal data transmission . . . continues unless and until a failure is detected on one of links 30 or line cards 34.” *Id.* ¶ 74. If a failure occurs, traffic manager 46 is informed of the failure, and notifies distributor 58 to modify its hash function so that outgoing traffic is distributed over the remaining links in the group. *See id.*

2. Analysis of Claim 1

For the reasons that follow, we are persuaded that Petitioner establishes sufficiently for the purpose of this decision that the subject matter of claim 1 would have been obvious over Bruckman.

a. Preamble—[1.0] A method for communication, comprising:

Petitioner asserts that Bruckman teaches the preamble recitation based on Bruckman’s disclosure of methods and systems of link aggregation in a data communication network. *See* Pet. 34 (quoting Ex. 1005 ¶ 1, code (57)). At this stage of the proceeding, we take no position as to whether the preamble is limiting.

Patent Owner does not address or rebut Petitioner’s showing for the preamble. *See* Prelim. Resp. 21–34. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir 2015).

Accordingly, for the purpose of institution, Petitioner shows sufficiently that the preamble is satisfied by the teachings of Bruckman.

b. [1.1] coupling a network node to one or more interface modules using a first group of first physical links arranged in parallel, . . .

[1.3] coupling each of the one or more interface modules to a communication network using a second group of second physical links arranged in parallel,

Petitioner asserts that Bruckman’s disclosure of networked customer nodes 24, 26, 28 connected to line cards 34 over links 30 teaches “coupling each of the one or more interface modules to a communication network using a second group of second physical links arranged in parallel.” *See* Pet. 34–35 (reproducing Ex. 1005, Fig. 1 (with Petitioner’s added annotations); quoting Ex. 1005 ¶¶ 2, 47; citing Ex. 1003 ¶¶ 60, 62). Petitioner also contends that Bruckman’s disclosure of line cards 34 coupled to the core network with a set of parallel traces 52 teaches “coupling each of the one or more interface modules to a communication network using a second group of second physical links arranged in parallel.” *See* Pet. 36–39 (reproducing Ex. 1005, Figs. 1, 2 (with Petitioner’s added annotations); quoting Ex. 1005 ¶¶ 56, 66; citing Ex. 1003 ¶¶ 67–70; Ex. 1005 ¶¶ 2, 57).

Patent Owner does not address or rebut Petitioner’s showings for these limitations. *See* Prelim. Resp. 21–34. In any event, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Accordingly, for the purpose of institution, Petitioner shows sufficiently that these limitations are satisfied by the teachings of Bruckman.

c. [1.2] at least one of said first physical links being a bi-directional link to communicate in both an upstream direction and a downstream direction;
[1.4] at least one of said second physical links being a bi-directional link operative to communicate in both an upstream direction and a downstream direction;

Petitioner asserts that Bruckman's disclosure of equipment 22 that transmits data over physical links 30 in both directions teaches "at least one of said first physical links being a bi-directional link to communicate in both an upstream direction and a downstream direction." *See* Pet. 35–36 (quoting Ex. 1005 ¶¶ 47, 58, 65; Ex. 1009, 376; citing Ex. 1003, ¶¶ 63–66; Ex. 1021, 8:11–13). Petitioner also contends that Bruckman's disclosure of aggregator 54 that distributes traffic to full-duplex links 30 and traces 52 that connect to multiplexers 50 that serve links 30 teaches "at least one of said second physical links being a bi-directional link operative to communicate in both an upstream direction and a downstream direction." *See* Pet. 39–40 (quoting Ex. 1005 ¶ 57; citing Ex. 1003 ¶ 71; Ex. 1005 ¶ 58, 65).

Patent Owner does not address or rebut Petitioner's showing for these limitations. *See* Prelim. Resp. 21–34. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Accordingly, for the purpose of institution, Petitioner shows sufficiently that these limitations are satisfied by the teachings of Bruckman.

d. [1.5] receiving a data frame having frame attributes sent between the communication network and the network node;

Petitioner contends that Bruckman's disclosure of aggregator 54 that receives data frames sent between core network and links 30 connected to

customers, where the data frames include various attributes including frame headers, teaches this limitation. *See* Pet. 40–41 (quoting Ex. 1005 ¶ 58; citing Ex. 1003 ¶¶ 73–74).

Patent Owner does not address or rebut Petitioner’s showing for this limitation. *See* Prelim. Resp. 21–34. In any event, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Accordingly, for the purpose of institution, Petitioner shows sufficiently that this limitation is satisfied by the teachings of Bruckman.

e. [1.6] selecting, in a single computation based on at least one of the frame attributes, a first physical link out of the first group and a second physical link out of the second group; and

Petitioner asserts that the teachings of Bruckman render obvious this limitation. Pet. 41–45. More specifically, Petitioner contends that Bruckman discloses aggregator 54 that includes distributor 58 that applies a predetermined hash function to the header information that selects which link 30 will transmit the data frame from the core network to the customer based on the value calculated from the “hash % lagSize” operation. *See* Pet. 41–42 (reproducing Ex. 1005, Table 1 (with Petitioner’s added annotations); citing Ex. 1003 ¶ 77; Ex. 1005 ¶ 58; Ex. 1011, 85, Ex. 1020, 7:44–45). Petitioner asserts that “hash % lagSize” itself, or its result, render obvious the claimed “single computation.” *See* Pet. 42; Ex. 1003 ¶ 77. According to Petitioner, a person of ordinary skill in the art “would have found it obvious that Bruckman’s hashing function selects both which link 30 (*‘first physical link out of the first group’*) **and** which trace 52 (*‘second physical link out of the second group’*) will transmit the data frame from the core network to the customer node.” Pet. 42 (citing Ex. 1003 ¶ 78).

Petitioner asserts that “Bruckman explicitly states that the hash function determines which link 30 receives the data frame.” *Id.* at 42 (quoting Ex. 1005 ¶ 58). Petitioner acknowledges that “Bruckman provides limited description of how the hash computation is used to select a trace,” and asserts that a person of ordinary skill in the art “would have recognized, however, that Bruckman’s selection of a link 30 also determines which trace 52 will transmit the data frame.” Pet. 42–43 (reproducing Ex. 1005, Fig. 2 (with added annotations); citing Ex. 1003 ¶ 79). According to Petitioner, a person of ordinary skill in the art “would have found it obvious that selection of a link 30 also determines which trace 52 will transmit the data frame because each link 30 is associated with only a single trace 52.” Pet. 43–44 (citing Ex. 1003 ¶ 80).

Patent Owner contends that Bruckman does not teach or suggest this limitation because there is no second selection because whichever link 30 is selected requires a specific trace to be used. *See* Prelim. Resp. 23–24. Stated in different terms, Patent Owner asserts that there is only one backplane trace 52 that can be used for any single port (i.e., link 30) because each port has only one associated backplane trace. *See id.* at 24; *see also id.* at 26 (similar argument). Patent Owner asserts that Petitioner’s annotation of Bruckman’s Figure 2 demonstrates that the only selection occurring is the selection of a link 30. *See id.* at 24–25 (reproducing Petitioner’s reproduction of Bruckman’s Figure 2). According to Patent Owner, “[t]he claims require that once a first link is selected from a group, a second link is selected from a second group—that is, there must [be] multiple second links to select from.” *Id.* at 25.

We do not agree with Patent Owner’s arguments because they are not commensurate in scope with this limitation of the claim 1. Claim 1 requires

“selecting . . . a first physical link . . . and a second physical link.” Claim 1 does not require a first selection of a first link followed in time by a second selection of a second link, as argued by Patent Owner. Claim 1 also does not require two independent or distinct selections, as suggested by Patent Owner’s arguments.

Accordingly, for the purpose of institution, Petitioner shows sufficiently that Bruckman teaches or suggests this limitation.

f. [1.7] sending the data frame over the selected first and second physical links,

[1.8] said sending comprising communicating along at least one of said bidirectional links.

Petitioner contends that Bruckman teaches or suggests these limitations based on Bruckman’s disclosure that distributor 58 distributes data frames arriving from the network among links 30, and that it would have been obvious that sending a frame over a given link involved sending the data frame over the single trace that leads to that link. *See* Pet. 45–46 (quoting Ex. 1005 ¶ 58; citing Ex. 1003 ¶¶ 85–88; Pet. 35–36, 39–45).

Patent Owner does not address or rebut Petitioner’s showing for these limitations. *See* Prelim. Resp. 21–34. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Accordingly, for the purpose of institution, Petitioner shows sufficiently that these limitations are satisfied by the teachings of Bruckman.

g. Summary

Accordingly, for the purpose of institution and based on the record before us, Petitioner shows sufficiently that the limitations of claim 1 are disclosed, taught, or suggested by Bruckman. In light of the foregoing, we

are persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claim 1 is unpatentable over Bruckman.

h. Compelling Merits

“Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” *Fintiv* Memo at 4. We determine that Petitioner’s challenge as to claim 1 based on Bruckman meets this standard. As set forth in the previous sections, Petitioner demonstrates that at this stage all elements of claim 1 are disclosed, taught, or suggested by Bruckman. If unrebutted at trial, we would conclude by a preponderance of the evidence that at least claim 1 is unpatentable over Bruckman.

Petitioner relies on various portions of Bruckman for disclosing, teaching, or suggesting the limitations of claim 1. *See* Pet. 34–46; *see also infra* § III.D.2 (detailing Petitioner’s arguments). At this stage, Patent Owner has not produced persuasive rebuttal evidence. For most of the claim limitations, Patent Owner provides no rebuttal to Petitioner’s analysis. Patent Owner’s arguments directed to a claim element [1.6] summarized in Section III.D.2.e, are not commensurate in scope with the limitations of the claim 1. In short, we determine that, on this preliminary record, Petitioner’s challenge to claim 1 meets the “compelling merits” standard as set forth in the *Fintiv* Memo.

3. Analysis of Independent Claim 17

Independent claim 17 recites limitations similar to the limitations recited in claim 1, except that claim 17 is directed to an apparatus, whereas claim 1 is directed to a method. *Compare* Ex. 1001, 10:65–11:20 *with*,

Ex. 1001, 17:35–58. Petitioner’s analysis addressing the limitations of claim 17 is substantially the same as, and relies upon, Petitioner’s analysis addressing claim 1. *Compare* Pet. 70–71 *with*, Pet. 30–46. Patent Owner’s arguments address claims 1–13 and 17–28 together as a group, and do not specifically address the limitations of claim 17 apart from the disputed limitation that is common to claims 1 and 17. *See* Prelim. Resp. 21–31.

For the same reasons as those explained above addressing independent claim 1, for the purpose of institution and based on the record before us, Petitioner shows sufficiently that the limitations of claim 17 are disclosed, taught, or suggested by Bruckman. Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claim 17 is unpatentable over Bruckman.

4. Analysis of Dependent Claims 2, 3, 6–12, 18, and 21–27

Claims 2, 3, and 6–12 depend directly or indirectly from claim 1, and claims 18 and 21–27 depend directly or indirectly from independent claim 17. *See* Ex. 1001, 11:21–28, 12:1–35, 13:59–62, 14:36–15:2. We have reviewed Petitioner’s contentions and cited supporting evidence addressing how Bruckman discloses, teaches, or suggests each of the limitations recited in dependent claims 2, 3, 6–12, 18, and 21–27. *See* Pet. 47–49, 51–64, 72–73 (citations omitted). Patent Owner’s arguments address claims 1–13 and 17–28 together as a group, and do not specifically addressing the limitations of dependent claims 2, 3, 6–12, 18, and 21–27 apart from the disputed limitations of claim 1 and 17.

For purposes of institution and based on the record before us, including the reasons explained above addressing independent claims 1 and 17, Petitioner shows sufficiently that the limitations of claims 2, 3, 6–12,

18, and 21–27 are disclosed, taught, or suggested by Bruckman. Therefore, we are persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claims 2, 3, 6–12, 18, and 21–27 are unpatentable over Bruckman.

5. Analysis of Independent Claims 4, 5, 13, 19, 20, and 28

Independent claims 4 and 19 recite substantially the same limitations as claim 1, but additionally recite “at least one of the first and second groups of physical links comprising an Ethernet link aggregation (LAG) group.” Ex. 1001, 11:44–45, 14:14–15. Independent claim 5 recites substantially the same limitations as claim 1, but additionally recites “coupling the network node to the one or more interface modules comprises aggregating two or more of the first physical links into an external Ethernet link aggregation (LAG) group so as to increase a data bandwidth provided to the network node.” Ex. 1001, 11:63–67. Independent claim 20 recites limitations similar to claim 5, but, like independent claim 17, is directed to an apparatus. *Compare* Ex. 1001, 14:15–35 *with*, Ex 1001, 11:47–67. Independent claim 13 recites substantially the same limitations as claim 1, but additionally recites “coupling the network node to the one or more interface modules and coupling each of the one or more interface modules to the communication network comprising specifying bandwidth requirements comprising at least one of a committed information rate (CIR), a peak information rate (PIR) and an excess information rate (EIR) of a communication service provided by the communication network to the network node, and allocating a bandwidth for the communication service over the first and second physical links responsively to the bandwidth requirements.” Ex. 1001, 12:53–63. Independent claim 28 recites limitations similar to claim 13, but, like

independent claim 17, is directed to an apparatus. *Compare* Ex. 1001, 15:3–28 *with*, Ex 1001, 12:36–63.

We have reviewed Petitioner’s contentions and cited supporting evidence addressing how Bruckman discloses, teaches, or suggests each of the additional limitations recited in independent claims 4, 5, 13, 19, 20, and 28. *See* Pet. 49–51, 64–66, 73, 74 (citations omitted). Patent Owner’s arguments address claims 1–13 and 17–28 together as a group, and do not specifically address the limitations of claims 4, 5, 13, 19, 20, and 28 apart from the disputed limitation that is common to independent claims 1, 4, 5, 13, 17, 19, 20, and 28. *See* Prelim. Resp. 21–31.

For purposes of institution and based on the record before us, including the reasons explained above addressing independent claims 1 and 17, Petitioner shows sufficiently that the limitations of claims 4, 5, 13, 19, 20, and 28 are disclosed, taught, or suggested by Bruckman. Therefore, we are persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that independent claims 4, 5, 13, 19, 20, and 28 are unpatentable over Bruckman.

6. Analysis of Independent Claims 14 and 29

Independent claim 14 recites substantially the same limitations as claim 1, however, claim 14 recites “for each data frame, selecting responsively to at least one of the respective frame attributes a backplane trace from the two or more backplane traces” instead of “selecting, in a single computation based on at least one of the frame attributes, a first physical link out of the first group and a second physical link out of the second group,” as recited in claim 1. *Compare* Ex. 1001, 11:13–16 *with*, Ex. 1001, 13:10–12. Independent claim 29 recites limitations similar to claim 14, but, like independent claim 17, is directed to an apparatus.

Compare Ex. 1001, 13:64–14:15 *with*, Ex 1001, 15:29–16:19. Petitioner relies on its analysis for claims 1 and 17 to address the limitations of claims 14 and 29. *See* Pet. 66–67, 74–75.

Patent Owner contends that “these claims require a selection between ‘two or more backplane traces.’” Prelim. 31. Patent Owner asserts that Bruckman does not “teach or suggest this element because the asserted references at best disclose selecting user ports, not backplane traces.” *Id.* According to Petitioner, “Bruckman selects the physical link 30 between a port and customer node, with each port corresponding to a single trace 52. Because Bruckman must use the trace 52 that corresponds to physical link 30 [], there is no selection of a trace.” *Id.* at 32 (citing Prelim. Resp. 21–31; Pet. 42–43). Patent Owner also asserts that “claims 14–16 and 29–31 require selecting a backplane trace from a plurality of backplane traces without regard to which physical link 30 is selected.” *Id.* (citing Ex. 1001, claims 14–16, 29–31).

We do not agree with Patent Owner’s arguments because they are not commensurate in scope with the aforementioned limitation of claims 14 and 29. Claims 14 and 29 does not require selection between two or more backplane traces that is independent or distinct from selection of a physical link/user port.

Accordingly, for the purpose of institution and based on the record before us, including the reasons explained above addressing independent claims 1 and 17, Petitioner shows sufficiently that the limitations of claims 14 and 29 are disclosed, taught, or suggested by Bruckman. In light of the foregoing, we are persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claims 14 and 29 are unpatentable over Bruckman.

7. Analysis of Independent Claims 15, 16, 30, and 31

Independent claims 15 and 30 recite substantially the same limitations as claims 14 and 29, but further recite 1 “at least some of the backplane traces being aggregated into an Ethernet Link aggregation (LAG) group.” Ex. 1001, 13:30–31, 16:30–31. We have reviewed Petitioner’s contentions and cited supporting evidence addressing how Bruckman discloses, teaches, or suggests each of the additional limitations recited in independent claims 15 and 30, and claims 16 and 31, dependent respectively therefrom. *See* Pet. 68–69, 74–75 (citations omitted). Patent Owner’s arguments address claims 14–16 and 29–31 together as a group, and do not specifically address the additional limitations of claims 15, 16, 30, and 31 apart from the disputed limitation that is common to independent claims 14, 15, 29, and 30. *See* Prelim. Resp. 21–31.

For the purpose of institution and based on the record before us, including the reasons explained above addressing independent claims 1, 14, 17, and 29, Petitioner shows sufficiently that the additional limitations of claims 15, 16, 30, and 31 are disclosed, taught, or suggested by Bruckman. Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claims 15, 16, 30, and 31 are unpatentable over Bruckman.

E. Additional Patentability Challenges

Petitioner challenges claims 1–31 as unpatentable over Bruckman and Basso. Pet. 21. Petitioner relies on the teachings of Basso to address “selecting . . . a second physical link out of the second group,” as recited in independent claims, 1, 4, 5, 13, and similarly recited in independent claims 17, 19, 20, and 28, as well as “selecting responsively to at least one of the respective frame attributes a backplane trace from the two or more

backplane traces,” recited in independent claims 14 and 15, and similarly recited in independent claims 29 and 30. *See* Pet. 29–30, 44–45, 49–51, 64–75. Petitioner also challenges dependent claims 11 and 26 on the basis of Bruckman and Holdsworth, as well as Bruckman, Basso, and Holdsworth. Pet. 21. Petitioner relies on the teachings of Holdsworth to address “selecting the first and second physical links responsively to respective first and second subsets of bits in a binary representation of the modulo,” as recited in dependent claim 11 and similarly recited in dependent claims 26. Pet. 76–79.

As set forth in the above detailed analysis, after considering the evidence and arguments presented in the Petition and the Preliminary Response, we determine that Petitioner demonstrates a reasonable likelihood of prevailing in showing claims 1–31 are unpatentable under 35 U.S.C. § 103 as obvious over Bruckman. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Accordingly, we institute an *inter partes* review of all of the challenged claims on all of the grounds articulated in the Petition, including the patentability challenge to claims 1–31 based on Bruckman and Basso, and the patentability challenges to claims 11 and 26 based on Bruckman and Holdsworth, and based on Bruckman, Basso, and Holdsworth. *See SAS*, 138 S. Ct. at 1356.

IV. CONCLUSION

For the foregoing reasons, we determine there is a reasonable likelihood that Petitioner would prevail in showing at least one of the challenged claims of the ’740 Patent is unpatentable.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–31 of the '740 Patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '740 Patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2023-00401
Patent 7,545,740 B2

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