

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARISTANETWORKS, INC.,
Petitioner,

v.

CORRIGENT CORPORATION,
Patent Owner.

IPR2023-00515
Patent 7,330,431 B2

Before NATHAN A. ENGELS, CHRISTOPHER L. OGDEN, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

OGDEN, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner Arista Networks, Inc. (“Arista”) filed a Petition (Paper 1, “Pet.”) under 35 U.S.C. §§ 311–319 requesting *inter partes* review of claims 1–30 of U.S. Patent No. 7,330,431 B2 (Ex. 1001, “the ’431 patent”). Patent Owner Corrigent Corporation (“Corrigent”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).¹

Under the authority delegated to us by the Director under 37 C.F.R. § 42.4(a), we may institute an *inter partes* review when “the information presented in the petition . . . and any response . . . 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); *see also* 37 C.F.R. § 42.108(c) (2022). Applying that standard, we institute an *inter partes* review of all the challenged claims of the ’431 patent for the reasons explained below. This is a preliminary decision, and we will base our final written decision on the full trial record.

II. BACKGROUND

A. THE ’431 PATENT (EX. 1001)

The ’431 patent describes “[a] method for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology,” where the network also includes logical links arranged in a topology

¹ The parties identify themselves as the real parties in interest, and this is not contested on the preliminary record. *See* Pet. 89; Paper 4, 2.

different from the physical topology. Ex. 1001, code (57). Figure 3, reproduced below, is a schematic diagram of logical and physical links between a set of network nodes:

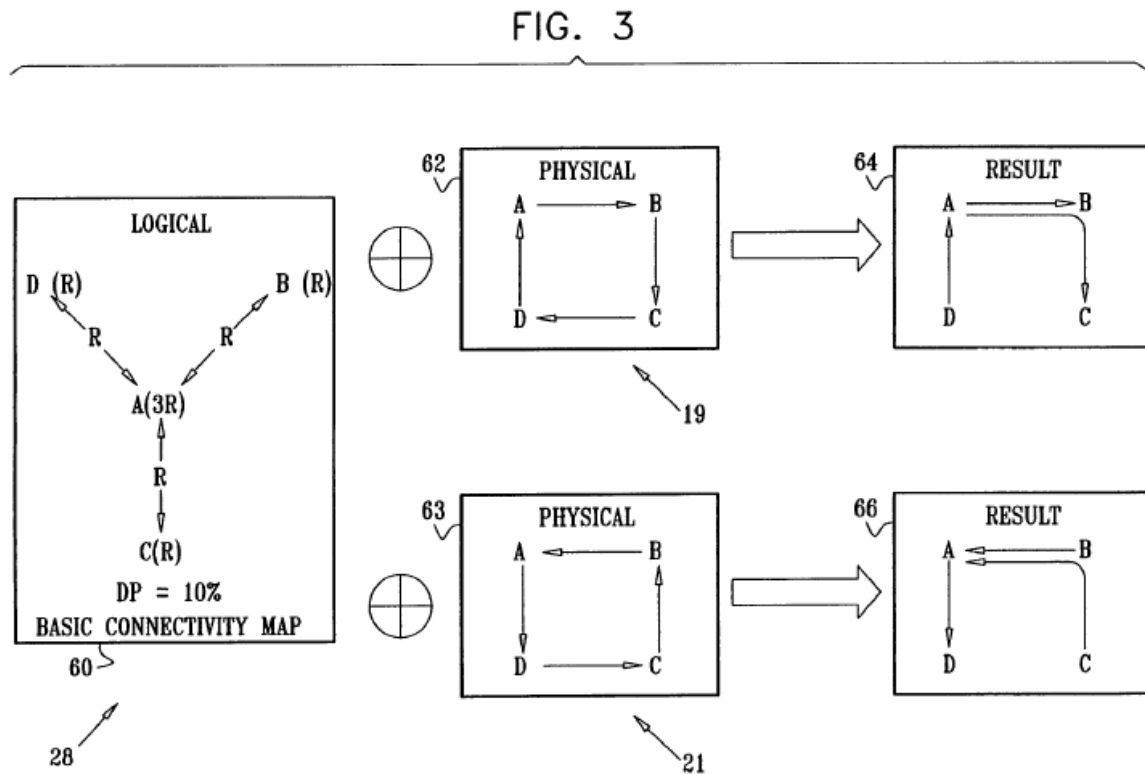


Figure 3 depicts a ring network as shown in boxes 62 and 63, which comprise clockwise (19) and counterclockwise (21) physical links, respectively, connecting nodes A–D. Basic connectivity map 60 shows the same nodes logically connected in a hub-and-spoke arrangement. *See* Ex. 1001, 7:66–8:20. Boxes 64 and 66 indicate the physical links from each network 19 and 21, respectively, that correspond to each unidirectional link in logical map 60. Basic connectivity map 60 indicates that each connection between A and the other nodes has bandwidth requirement R, and there is also a correction factor or “deviation parameter (DP)” of 10% that comes into play when assigning actual bandwidths. *Id.* at 7:22–28, 8:2–20.

The process of determining actual bandwidths for each physical link proceeds as shown in Figure 2, reproduced below:

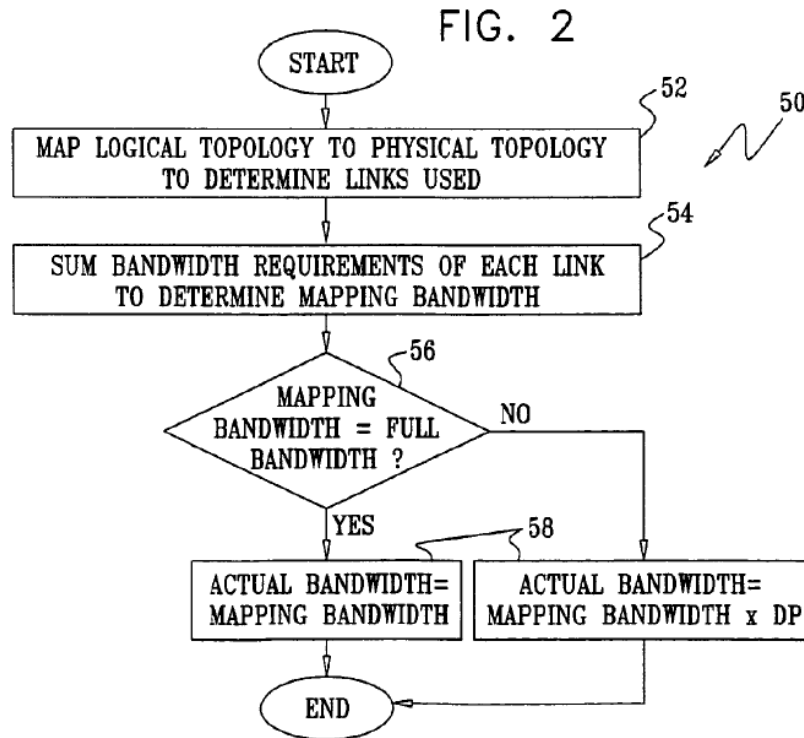


Figure 2, above, is a flowchart that begins with step 52, which maps a logical topology to the physical topology to determine the physical links to be used in the network. *Ex.* 1001, 7:38–41, 8:21–51. Step 54 then sums the bandwidth requirements for each of the physical links identified in step 52 to determine “mapping bandwidths” for each link. *Id.* at 7:42–44, 8:52–9:17. Next, step 56 compares each mapping bandwidth with a corresponding “full” bandwidth that would be available “if every possible [logical] connection in the network is provided for.” *Id.* at 7:45–54, 9:18–44. If the “mapping” and “full” bandwidths are equal, then in step 58 the actual bandwidth is the mapping bandwidth; otherwise, the actual bandwidth is the mapping bandwidth multiplied by DP. *Id.* at 7:55–62, 9:46–10:7. Thus, in Figure 3, the “full” bandwidths for physical links B–C in network 19 and C–

B in network 21 are $2R$,² which differs from mapping bandwidths R , so the actual bandwidths for these physical links would be $1.1R$ (mapping bandwidth R multiplied by correction factor 1.10 corresponding to the DP of 10%). *See id.*, col. 9, Table IV.

B. CHALLENGED CLAIMS AND GROUNDS

Representative claim 1 is as follows:

- [1.0] 1. A method for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the method comprising:
 - [1.1] defining between the nodes logical connections associated with a data transmission service to be provided over the network,
 - [1.2] the logical connections having a connection topology different from the physical topology;
 - [1.3] determining respective bandwidth requirements for the logical connections based on parameters of the service;
 - [1.4] mapping the connection topology to the physical topology, so that each of the logical connections is associated with one or more links of the physical topology; and
 - [1.5] allocating a bandwidth for the service on each of the links in response to the bandwidth requirements of the logical connections and to the mapping.

² This is because, in calculating the “mapping” bandwidths for physical links B–C and C–B, the method only relies on links associated with logical connections between nodes A and C in map 60 of Figure 3, whereas the “full” bandwidth also includes potential logical connections (not shown) directly between nodes B and C. *See Ex. 1001*, col. 9, Tables II, III, Fig. 3.

Ex. 1001, 13:36–52 (Arista’s reference numbers added); *accord* Pet. 91 (claim listing).

Arista argues four grounds for *inter partes* review, as summarized in the following table:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–5, 7–11, 25, 26	103(a) ³	Baker, ⁴ Wright, ⁵ Holender ’669 ⁶
12–16, 18–24, 27–30	103(a)	Baker, Wright, Holender ’669, Holender ’894 ⁷
6	103(a)	Baker, Wright, Holender ’669, Zheng ⁸
17	103(a)	Baker, Wright, Holender ’669, Holender ’894, Zheng

Pet. 4.

C. DECLARATORY TESTIMONY

Arista submits a declaration by Tal Lavian, Ph.D. Ex. 1021.

Dr. Lavian incorporates by reference⁹ the totality of a declaration by Henry

³ 35 U.S.C. § 103(a) (2006), *amended by* Leahy–Smith America Invents Act, Pub. L. No. 112-29 § 103, sec. (n)(1), 125 Stat. 284, 287, 293 (2011) (effective Mar. 16, 2013). This version of § 103 applies because the ’431 patent issued from an application filed on September 3, 2004, which is before the effective date of the AIA amendments. *See* Ex. 1001, code (22).

⁴ Baker, US 2004/0095946 A1 (published May 20, 2004) (Ex. 1005).

⁵ Wright, US 2004/0174884 A1 (published Sept. 7, 2004) (Ex. 1006).

⁶ Holender et al., US 6,104,699 (issued Aug. 15, 2000) (Ex. 1007).

⁷ Holender et al., US 6,069,894 (issued May 30, 2000) (Ex. 1020).

⁸ Zheng et al., US 6,757,247 B1 (issued June 29, 2004) (Ex. 1008).

⁹ 37 C.F.R. § 42.6(a)(3), which covers the filing of documents including exhibits, states that “[a]rguments must not be incorporated by reference from one document into another document.” We encourage the parties to address

Houh, Ph.D. (Ex. 1003) in which he provided testimony supporting the petition in related case IPR2023-00169. *See* Ex. 1021 ¶ 24. Corrigent does not submit rebuttal testimony at this stage.

D. RELATED PROCEEDINGS

As related matters, the parties identify *Corrigent Corp. v. Dell Techs., Inc.*, No. 1:22-cv-00496-RGA(D. Del. filed Apr. 19, 2022); *Corrigent Corp. v. Arista Networks, Inc.*, No. 1:22-cv-00497-RGA(D. Del. filed Apr. 19, 2022), *Corrigent Corp. v. Cisco Systems, Inc.*, No. 6:22-cv-00396-ADA (W.D. Tex. filed Apr. 19, 2022), as well as *inter partes* review proceedings *Unified Patents, LLC v. Corrigent Corp.*, IPR2022-01514 (terminated Apr. 4, 2023) and *Cisco Systems, Inc. v. Corrigent Corp.*, IPR2023-00169 (instituted July 6, 2023). Pet. 89; Paper 4, 2–3.

III. DISCRETIONARY GROUND FOR DENYING INSTITUTION

In light of *inter partes* review proceeding IPR2022-00169, which also challenges the claims of the '431 patent based on similar art and arguments, Corrigent contends that we should deny institution based on our discretion under 35 U.S.C. § 314(a). Prelim. Resp. 22–30.

Institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016); *see also* 35 U.S.C. § 314(a). The Board has recognized a number of factors that may merit denial of institution under § 314(a) when a party files a “follow-on” petition

whether, and to what extent, Dr. Lavian’s testimony is impacted under this rule by improperly incorporating Dr. Houh’s testimony.

challenging the same patent as a previous petition. *See General Plastic Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 15–16 (PTAB Sept. 6, 2017) (precedential as to § II.B.4.i). These factors are as follows:

1. whether the same petitioner previously filed a petition directed to the same claims of the same patent;
2. whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known of it;
3. whether at the time of filing of the second petition the petitioner already received the patent owner’s preliminary response to the first petition or received the Board’s decision on whether to institute review in the first petition;
4. the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition;
5. whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent;
6. the finite resources of the Board; and
7. the requirement under 35 U.S.C. § 316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review.

Id. at 16. The *General Plastic* factors “are not dispositive, but part of a balanced assessment of all relevant circumstances in the case, including the merits.” Consolidated Trial Practice Guide 58 (Nov. 2019) (“Trial Practice Guide”), <https://go.usa.gov/xpvPF> (citing *General Plastic*, Paper 19 at 15).

Below, we address each of these factors as they apply to the circumstances of this case, and determine that these circumstances do not warrant discretionary denial of institution.

1. *Whether the Same Petitioner Previously Filed a Petition Directed to the Same Claims of the Same Patent*

Arista argues that the first *General Plastic* factor weighs against discretionary denial because Arista is not a co-defendant with prior petitioners in related litigation and has no significant relationship with the prior petitioners. *See* Pet. 86–87.

Corrigent responds that Arista has a “significant relationship” with Cisco and Dell, the petitioners in the IPR2023-00169 proceeding, because Arista used the prior petition as a roadmap for its own petition. Prelim. Resp. 23–24 (citing *Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, Paper 11 at 9–10 (PTAB Apr. 2, 2019) (precedential); *Ericsson Inc. v. Uniloc 2017, LLC*, IPR2019-01550, Paper 8 at 11–12 (PTAB Mar. 17, 2020)).

Corrigent argues that the Petition challenges the same claims as the prior petition and “copied (nearly verbatim) all of Cisco/Dell’s arguments and then added additional prior art and arguments to four claim elements that they clearly deemed to be weak points in the Cisco/Dell petition.” *Id.* at 24; *see* Pet. 88 (“Arista’s petition includes the same grounds as the Cisco petition with the addition of a single prior art reference for elements [1.3], [1.5], and [9] for ground 1 (Holender ’699) and element [12.3] for ground 2 (Holender ’894).” (brackets in original)). Corrigent also notes that Arista’s declarant, Dr. Lavian, incorporates by reference the petitioner’s expert testimony in the IPR2023-00169 proceeding. Prelim. Resp. 24 (citing Ex. 1021 ¶ 24).

In *Valve*, the petitioner Valve filed its petition after the Board had denied institution on a previous petition by HTC, who was its co-defendant in related district court litigation. IPR2019-00062, Paper 11 at 9–10.

Because “Valve and HTC were co-defendants in the District Court litigation and were accused of infringing the [challenged] patent based on HTC’s . . . devices that incorporate technology licensed from Valve,” and because there was a complete overlap in the challenged claims, the Board held that “there is a significant relationship between Valve and HTC with respect to Patent Owner’s assertion of the [challenged] patent.” *Id.* at 10.

Although Arista is a defendant in a parallel litigation asserting that Arista infringed the ’431 patent, unlike the situation in *Valve*, Arista does not appear to be a co-defendant with any prior petitioner in the same proceeding. *See* Pet. 86–87. Thus, Arista does not have the type of relationship with Cisco or Dell that Valve had with HTC in the *Valve* decision.

In *Ericsson*, a panel determined that the petitioner had “implicitly created” a relationship with petitioners in four prior proceedings “by using the prior petitioners’ work as a menu and picking and choosing from their work product.” IPR2019-01550, Paper 8 at 3, 12. Here, however, the evidence does not suggest that Arista is “picking and choosing” from the arguments made in the IPR2023-00169 case in the same way as addressed in *Ericsson*. Here, Arista is incorporating the arguments in the prior case, and adding additional alternative arguments. *See, e.g.*, Pet. 7, 12–15, 28–30, 36–38, 43–44, 48–52.

Thus, while we recognize that the Petition in this proceeding challenges the same claims and includes substantially the same arguments as the petition in the IPR2023-00169 case, the record is devoid of any other evidence of a substantial relationship between Arista and the prior petitioners, or any evidence of unfair gamesmanship. Thus, the first *General Plastic* factor weighs, at most, only slightly in favor of denying institution.

2. *Whether at the Time of Filing of the First Petition the Petitioner Knew of the Prior Art Asserted in the Second Petition or Should Have Known of It*

Citing the precedential decision in *Apple v. Uniloc*, IPR2020-00854, Paper 9 (PTAB Oct. 28, 2020), Corrigent argues that Arista has offered no explanation with regard to the second *General Plastic* factor, that thus that alone is sufficient for us to weigh that factor in favor of denying institution. Prelim. Resp. 26–27 (citing IPR2020-00854, Paper 9 at 9). Also, according to Corrigent, “Arista admits that it had knowledge of the Unified Patents petition after it was filed,” which was “2 months before the Cisco/Dell petition,” and “[t]he only reference that Arista uses in grounds 1 and 2 that is not in the Unified Patents petition is Holender ’699, which is from the same inventor as . . . Holender ’894.” *Id.* at 27 (citing Pet. 87; Ex. 2001, 3–4, 93; Ex. 2002, 104).

We agree with Corrigent that Arista would have already been aware of most of the prior art in Cisco and Dell’s earlier petition. Thus, the second *General Plastic* factor weighs somewhat in favor of denying institution.

3. *Whether at the Time of Filing of the Second Petition the Petitioner Already Received the Patent Owner’s Preliminary Response to the First Petition or Received the Board’s Decision on Whether to Institute Review in the First Petition*

Arista argues that when it filed its Petition, Corrigent had not filed any preliminary response in the prior proceedings. *See* Pet. 87. Corrigent acknowledges this, but contends that the third *General Plastic* factor “is at least neutral” because “Arista strategically delayed filing the instant Petition

until the day before the deadline for Patent Owner’s preliminary response in the Unified Patents’ IPR proceeding.” Prelim. Resp. 28 (citing Ex. 2003, 14).

While Corrigent’s arguments for the first two *General Plastic* factors regard the “first petition” to be the one in the IPR2023-00169 case, Corrigent switches to the earlier Unified Patents IPR2022-01514 petition (now terminated at the request of Unified Patents) for the third factor. *See* IPR2022-01514, Paper 8 (Apr. 4, 2023). However, Corrigent does not assert that there is a substantial relationship between Arista and Unified Patents. *See* Prelim. Resp. 23–25. Moreover, Corrigent does not suggest that Arista had the benefit of any of Corrigent’s responses before Arista filed its petition. *See id.* at 28.

Although Arista relies significantly on arguments made in the IPR2023-00169 petition while making additional, alternative arguments, the Petition does not substantially change course with respect to the earlier petition, and Arista has not been able to capitalize on Corrigent’s preliminary response to any prior petition. Thus, the third *General Plastic* factor weighs substantially against discretionary denial of institution.

4. *The Length of Time that Elapsed Between the Time the Petitioner Learned of the Prior Art Asserted in the Second Petition and the Filing of the Second Petition*

Arista contends that the fourth *General Plastic* factor weighs against discretionary denial because it filed its Petition “less than four months after Unified’s [p]etition and approximately two months after Cisco’s [p]etition.” Pet. 87.

In response, Corrigent argues that “Arista makes no attempt to explain why it waited 4 months after Unified Patents filed its petition,” and this lack

of explanation itself is sufficient to weigh the fourth *General Plastic* factor in favor of discretionary denial. Prelim. Resp. 28–29 (citing *Apple v. Uniloc*, IPR2020-00854, Paper 9 at 11).

We disagree. The Board in *Apple v. Uniloc* weighed the fourth *General Plastic* factor in favor of discretionary denial because the petitioner Apple “provides no context by which to ascertain Apple’s knowledge of the prior art asserted in the [earlier IPR]. Therefore, [the Board] cannot determine how much time elapsed between Apple’s knowledge of the prior art in the [earlier IPR] and the filing of its second petition.” IPR2020-00854, Paper 9 at 11. Here, the evidence suggests that Arista became aware of Baker and Wright when Uniloc filed its petition in IPR2022-01514, and became aware of Holender ’699 when Cisco and Dell filed its petition in IPR2023-00169, two months before Arista filed its Petition. We regard the delay after learning about the art in the two prior petitions as significant but not excessive under the circumstances. Thus, we weigh this factor as neutral.

5. *Whether the Petitioner Provides Adequate Explanation for the Time Elapsed Between the Filings of Multiple Petitions Directed to the Same Claims of the Same Patent*

Arista argues that its two-month delay after the filing of the petition in IPR2023-00169 is reasonable and did not provide it with any benefit or tactical advantage. Pet. 87.

Corrigent responds that “Arista makes no attempt to explain why it waited 4 months to file this Petition after filing of the Unified Patents petition” and “fails to explain why it waited two months to file a petition that repeated nearly verbatim the same arguments as Cisco/Dell’s prior petition.” Prelim. Resp. 29 (citing *Apple v. Uniloc*, IPR2020-00854, Paper 9 at 11).

Corrigent’s arguments regarding the four-month delay after the Unified Patents petition in the IPR2022-01514 proceeding are not persuasive because Corrigent does not argue, and the evidence does not suggest, that there is a substantial relationship between Arista and Unified Patents, only that there is such an implied relationship between Arista and Cisco or Dell. *See* Prelim. Resp. 23–25. As to the two-month delay after Cisco and Dell’s IPR2023-00169 petition, we do not find that delay to be excessive because Arista has asserted additional art and acquired supporting declaratory testimony from a different declarant. Under the circumstances, we consider two months to be a reasonable amount of time for this, and see little need for an explanation for this delay beyond what Arista provided in the Petition. *See* Pet. 87.

Thus, we regard the fifth *General Plastic* factor as neutral.

6. *The Finite Resources of the Board; and the Requirement Under 35 U.S.C. § 316(a)(11) to Issue a Final Determination Not Later than 1 Year After the Date on Which the Director Notices Institution of Review*

Arista argues that the sixth and seventh *General Plastic* factors weigh against discretionary denial because the grounds in its Petition are largely the same as the grounds in the IPR2023-00169 petition except for the addition of Holender ’699 and Holender ’894 with respect to some of the limitations, “[t]he Arista and Cisco petitions could be joined” and “Arista agrees to allow Cisco’s counsel to take the lead on overlapping issues.” Pet. 88.

Corrigent responds that “Arista fails to explain why the Board should further extend its resources to consider an additional, nearly duplicative *inter partes* review,” and “Arista chose not to submit a copycat IPR petition and

file a motion to join the Cisco/Dell IPR proceeding.” Prelim. Resp. 30. As to the seventh *General Plastic* factor, Corrigent concedes that “[t]here is no indication that the Board could not issue a decision within 1 year after institution.” *Id.*

We agree with Arista that the fact that its Petition is substantially duplicative of the IPR2023-00169 petition minimizes the impact on the Board’s resources, particularly if we were to consolidate the two cases under 35 U.S.C. § 315(d) and Arista takes a subordinate role as to any overlapping issues between the two cases, as Arista suggests. *See* Pet. 88.¹⁰ Arista’s stipulation “to allow Cisco’s counsel to take the lead on overlapping issues” further minimizes the impact on the Board. Pet. 88. As to the seventh *General Plastic* factor, there is no impediment for the Board to issue a final written decision within one year of institution. Moreover, because this Decision issues only about a month after the decision instituting trial in the IPR2023-00169 proceeding, there is no impediment to consolidating the two cases, and if necessary the Board can adjust the schedule so that deadlines are the same in both proceedings.

¹⁰ Arista suggests that the two proceedings “could be joined,” but joinder under 35 U.S.C. § 315(c) would be inappropriate in this case where the Petition introduces new issues beyond those of the earlier petition. *See Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1336 (Fed. Cir. 2020) (“We therefore conclude that the unambiguous meaning of § 315(c) is that it allows the Director discretion to join a person *as a party* to an already-instituted IPR but does not permit the joined party, by virtue of the joinder decision alone, to bring new issues from a second proceeding into the existing proceeding.”).

Thus, *General Plastic* factors 6 and 7 weigh against discretionary denial of institution.

B. CONCLUSION AS TO THE *GENERAL PLASTIC* FACTORS

For the reasons above, factors 1 and 2 weigh in favor of discretionary denial, factors 4 and 5 are neutral, and factors 3, 6, and 7 weigh against discretionary denial. Although no single factor is dispositive, the third and sixth factors are particularly pertinent, and as a whole, the factors weigh against denying institution on the present Petition.

IV. GROUNDS OF THE PETITION

For the reasons below, we determine that Arista has demonstrated a reasonable likelihood that it would prevail in showing that at least one of claims 1–30 of the ’431 patent is unpatentable under the grounds of the Petition. Before analyzing these grounds in detail, we address two matters that will underlie our analysis: the level of ordinary skill in the art and the constructions we will apply to the claim terms.

A. LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the pertinent art at the time of the invention is a factor in how we construe patent claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). It is also one of the factors we consider when determining whether a patent claim is obvious over the prior art. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To assess the level of ordinary skill, we construct a hypothetical “person of ordinary skill in the art,” from whose vantage point we assess

obviousness and claim interpretation. *See In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). This legal construct “presumes that all prior art references in the field of the invention are available to this hypothetical skilled artisan.” *Id.* (citing *In re Carlson*, 983 F.2d 1032, 1038 (Fed. Cir. 1993)).

Relying on Dr. Houh’s testimony, Arista argues that a person of ordinary skill in the art “would have had a working knowledge of networking art that is pertinent to the ’431 patent, including network communications techniques and bandwidth management methodologies,” and “would have had a bachelor’s degree in computer science, computer engineering, electrical engineering, or an equivalent, and two years of professional experience relating to network communications including the use of logical topologies and bandwidth management. Lack of professional experience can be remedied by additional education, and vice versa.” Pet. 3 (citing Ex. 1003 ¶¶ 18–20).

At this stage, Corrigent does not dispute Arista’s proposed level of ordinary skill in the art. *See generally* Prelim. Resp. Because Arista’s articulation of that level of skill is presently uncontested, supported by testimonial evidence, and appears consistent with the types of problems and solutions in the ’431 patent, we adopt it for this decision.

B. CLAIM CONSTRUCTION

In an *inter partes* review, we construe a patent claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2022). This generally includes “construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in

the art and the prosecution history pertaining to the patent.” *Id.* The ordinary and customary meaning of a claim term “is its meaning to the ordinary artisan after reading the entire patent,” and “as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1313, 1321.

Arista argues that “no claim term requires express construction” for this proceeding. *See* Pet. 11 (citing Ex. 1003 ¶ 28). Likewise, Corrigent does not propose any explicit constructions at this stage, and states that it “will apply the ordinary and customary meaning to the ’431 Patent claim terms.” *See* Prelim. Resp. 4.

At this stage, we have not identified any claim terms that clearly depart from their ordinary and customary meanings, and our decision to institute trial does not require us to construe any terms explicitly. *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))). Accordingly, we address the claim limitations below in the context of the prior art.

C. OBVIOUSNESS OF CLAIM 1 BASED ON BAKER AND WRIGHT

Arista first argues that claim 1 is unpatentable under § 103(a) as obvious over Baker in view of Wright and Holender ’699. Pet. 5–58.

A claim is unpatentable under § 103(a) 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 said subject matter pertains.”

KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007). When a ground in a petition is based on a combination of references, we consider “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *Id.* at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

We base our obviousness inquiry on factual considerations 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) any objective indicia of obviousness or non-obviousness that may be in evidence. *See Graham*, 383 U.S. at 17–18.

Considering these factors,¹¹ we determine that Arista has shown a reasonable likelihood that claim 1 is unpatentable as obvious over Baker in view of Wright and Holender ’699. We begin our analysis with a brief overview of the prior art, and then we address the parties’ contentions with respect to the challenged claims.

1. Baker

Baker describes “[a] logical star architecture imposed on an underlying non-star network” such as a ring network. Ex. 1005, code (57), ¶ 30. Figure 1, reproduced below, depicts an example of such a network:

¹¹ Because neither party argues that there are objective indicia of obviousness or non-obviousness at this stage, this does not factor into our decision.

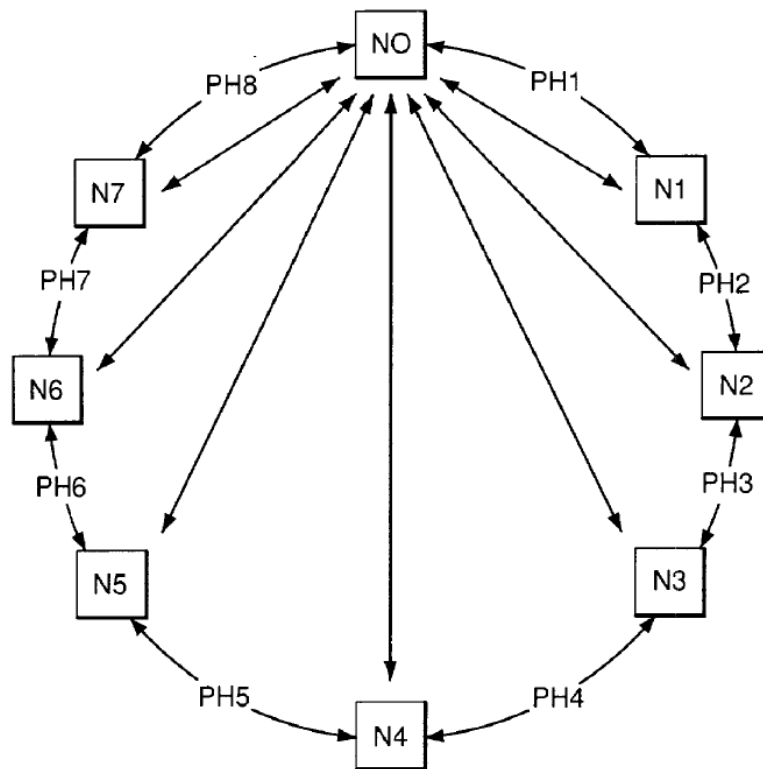


FIG. 1

Figure 1, above, “illustrates a bidirectional physical communications ring where N0 through N7 represent routing and switching nodes, PH1 through PH8 represent bidirectional physical links between nodes, and VP1 through VP7 represent bidirectional virtual paths associated with a logical star topology overlaid on the physical ring.” Ex. 1005 ¶ 31. Head node N0 “manage[s] the network feeder utilization” so that “resources such as bandwidth can be more effectively managed.” *Id.* ¶ 62.

One example of assigning virtual paths to physical links in a ring network is shown in Figure 11, reproduced below:

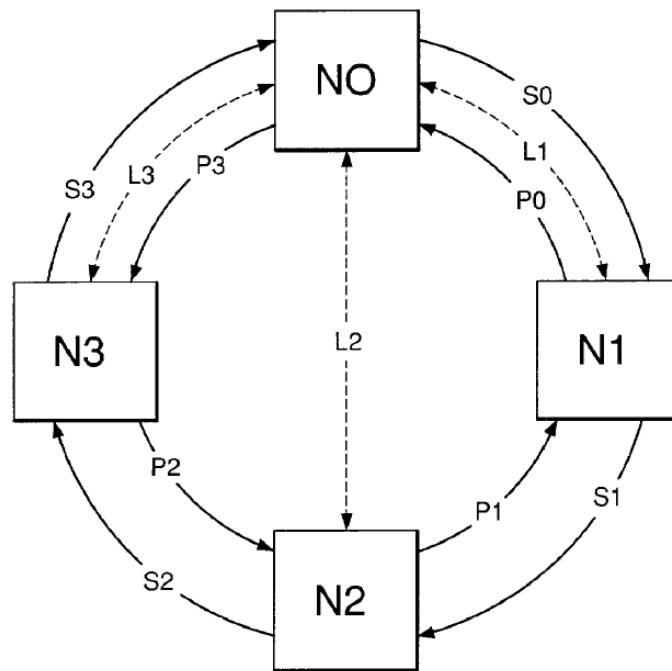


FIG. 11

Figure 11, above, depicts a ring network with nodes N0–N3, clockwise physical “service” links S0–S3, and counterclockwise physical “protection” links P0–P3¹² “overlaid with virtual bidirectional paths L1, L2, and L3” which “constitute a logical star topology.” Ex. 1005 ¶ 80. According to Baker, “service traffic logically carried on L1 of the star overlay from N0 to N1 is carried on path S0 of the underlying ring topology, while service traffic logically carried on L1 . . . from N1 to N0 is carried on the combination of service paths S1, S2, and S3.” *Id.* “Similarly, service traffic logically carried on L2 of the star overlay from N0 to N2 is carried on the

¹² “Protection” links are provided so that, “[i]f communications on the ring are disrupted (e.g., by a node or link failure), then all traffic previously serviced by the failed node or link will be routed in the opposite direction.” Ex. 1005 ¶ 72.

combination of S0 and S1 . . . , while service traffic logically carried on L2 . . . from N2 to N0 is carried on the combination of S2 and S3.” *Id.* ¶ 81.

2. *Wright*

Wright teaches “[a] method for traffic engineering of connectionless virtual private network (VPN) services” which creates a “restricted topology” based on “physical connectivity data” and “[l]ogical connectivity data,” and “[a] bandwidth requirement for each link in the restricted topology is calculated.” Ex. 1006, code (57). Figure 5, reproduced below, is a flowchart for this method:

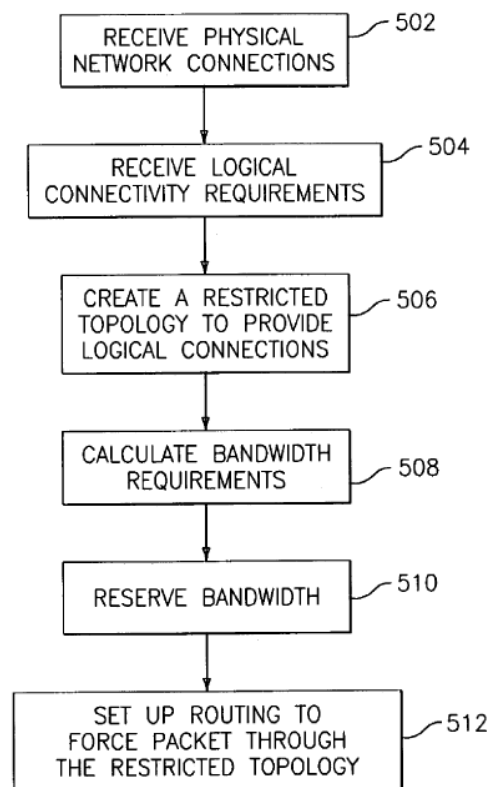


FIG. 5

As shown in the figure above, the method begins in step 502 with receiving physical network connections, which “may include data such as nodes and links included in the VPN.” Ex. 1006 ¶ 24. Step 504 involves receiving

logical connectivity requirements “in terms of edge nodes and communication requirements between edge nodes.” *Id.* Then step 506 involves “creating a restricted topology to provide logical connections,” which “may be based on a tree structure and includes a single path between each pair of endpoints.” *Id.* The final steps involve calculating bandwidth requirements (508), reserving bandwidth (510), and directing routing software to force packets in the VPN to only travel through the restricted topology (512). *Id.*

3. *Holender '699*

Holender '699 describes a method to “partition physical transmission resources of a physical network” in which “a set of logical networks is established on top of the physical network.” Ex. 1007, code (57). The reference teaches simplifying work management for “services with very different demands to e.g. bandwidth, grade of service or congestion control functions” by arranging service classes “into groups in such a way that only those of similar properties are handled together in a logical network.” *Id.* at 3:61–63, 4:1–4.

4. *Preamble (1.0) and Limitations 1.1 and 1.2*

The preamble (1.0) recites “[a] method for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology.” Ex. 1001, 13:36–38. Arista argues that “Baker discloses the preamble, to the extent it is limiting” because Baker’s network includes a topology of nodes coupled by physical links and bandwidth is among the network resources to be assigned to the network elements. Pet. 15–17 (citing Ex. 1005 ¶¶ 16, 19, 30–32, 62, Figs. 1, 2; Ex. 1003 ¶¶ 50–54).

Limitations 1.1 and 1.2 recite a step of “defining between the nodes logical connections associated with a data transmission service to be provided over the network, the logical connections having a connection topology different from the physical topology.” Ex. 1001, 13:39–42. Arista argues that Baker discloses logical connections for a data transmission service (i.e., “data traffic” and “signals”) between nodes in a star pattern which differs from the physical ring topology, as shown in Baker’s Figures 1, 4, 5, and 11. Pet. 17–21 & n.2 (citing Ex. 1001, 1:20–30, 7:29–31; Ex. 1005 ¶¶ 12, 30–32, 38, 54, 76, 80, 88, Figs. 1, 4, 11; Ex. 1003 ¶¶ 55–64); Pet. 27–29 (citing Ex. 1005 ¶¶ 13, 22, 30–31, 54, Figs. 1, 5; Ex. 1003 ¶¶ 69–73).

Also, for limitation 1.1, Arista contends that Wright further teaches using logical connections associated with data transmission services in the form of a VPN, video on demand (VOD), or video conferencing. Pet. 21–22 (citing Ex. 1001, 1:60–2:1; Ex. 1006 ¶¶ 2–3, 5–7, 14–16, 25; Ex. 1003 ¶¶ 65–68). According to Arista, “Baker is agnostic to the types of services supported by” its traffic, and a person of ordinary skill in the art would have turned to Wright for “additional examples of the types of service whose traffic traverses Baker’s network.” Pet. 9 (citing Ex. 1005 ¶¶ 12, 37–38, 80; Ex. 1006 ¶ 3, 15, 25; Ex. 1003 ¶ 41).

Corrigent does not specifically contest these arguments at this stage. *See generally* Prelim. Resp. Because the preliminary evidence suggests that Baker discloses a method for assigning bandwidth to resources of a physical ring network, we need not decide whether the preamble is limiting. *See, e.g.*, Ex. 1005 ¶ 62, Fig. 1. Also, the evidence at this stage suggests that Baker, alone or in view of Wright, teaches defining a logical, star-shaped overlay

associated with application traffic. *See, e.g.*, Ex. 1005 ¶ 30, Figs. 1, 11; Ex. 1006 ¶¶ 2–3. Thus, we find Arista’s arguments sufficiently persuasive that Baker, alone or in light of Wright, teaches the preamble of claim 1 and limitations 1.1–1.2.

5. *Limitation 1.3*

Limitation 1.3 recites “determining respective bandwidth requirements for the logical connections based on parameters of the service.” Ex. 1001, 13:43–44.

Arista argues that Baker discloses managing network resources that include bandwidth, and that a person of ordinary skill in the art would have understood this to include “ma[king] decisions based on the bandwidth needed, desired, or used by the services operating over Baker’s virtual paths.” Pet. 24–25 (citing Ex. 1005 ¶¶ 16, 54, 62; Ex. 1003 ¶¶ 74–76). Arista also argues that making the recited bandwidth determinations would have been obvious in view of Wright’s teachings “to identify the required bandwidth and to provide guarantees for that bandwidth.” Pet. 25 (quoting Ex. 1006 ¶ 18) (citing Ex. 1003 ¶¶ 77–78); *see also* Pet. 25–26 (citing Ex. 1006 ¶¶ 5–7, 17, 24, Figs. 3, 5; Ex. 1003 ¶¶ 78–80) (arguing that Wright calculates bandwidth requirements for a set of logical connections).

Alternatively, Arista argues that Holender ’699 discloses determining bandwidth requirements for its logical connections, pointing in particular to a step in the flowchart of Figure 4 that refers to determining logical link capacities “such that the route blocking on each individual route in each one of the logical networks is less than or possibly equal to a maximum allowed blocking probability, given for each individual route, by distributing the route blocking evenly among the logical links used by the respective route.”

Pet. 28–29 (quoting Ex. 1007, 6:5–10) (citing Ex. 1007, 1:53–55, 3:9–15, 6:4–10, Fig. 4; 1021 ¶¶ 120–123); Pet. 12–15 (addressing the alleged motivation to combine Holender ’699 with Baker and Wright).

At this stage, Corrigent does not “dispute that Wright and Holender ’699 disclose ‘determining respective bandwidth requirements for the logical connections.’” Prelim. Resp. 7. We find the evidence sufficient, at this stage, to support Arista’s arguments that Baker, in view of Wright with or without Holender ’699, teaches this part of limitation 1.3.

As to the requirement in limitation 1.3 that the bandwidth requirements are determined “based on parameters of the service,” Arista argues that in the method shown in Wright’s Figure 5 (reproduced *supra* Section IV.C.2), step 508 calculates bandwidth requirements “based on the ‘restricted topology,’ which is in turn created from the ‘logical connectivity requirements.’” Pet. 26 (quoting Ex. 1006 ¶ 24, Fig. 5). Thus, according to Arista, a person of ordinary skill in the art would have understood that the bandwidth requirements are based on the logical connectivity requirements, which are parameters of the service. Pet. 26–27 (citing Ex. 1006 ¶¶ 17, 24, Fig. 3; Ex. 1003 ¶¶ 80–81).

Arista also points to alleged teachings in Wright to base the bandwidth requirements on such things as a specified minimum or maximum bandwidth, quality of service guarantees, the number of supported active calls, whether the service is symmetric or asymmetric, whether the service is a dynamic session-based service, or whether it is a high-bandwidth service like VoIP. Pet. 27–28 (citing Ex. 1006 ¶¶ 18, 20, 25; Ex. 1003 ¶¶ 82–85).

Corrigent disagrees that Wright’s bandwidth requirements are “based on parameters of the service” as recited in limitation 1.3. Prelim. Resp. 8.

First, Corrigent argues that Arista does not adequately support its contention that in Wright’s method, step 508 actually calculates bandwidth requirements using the logical connectivity requirements of step 504. *See id.* at 8–10. Corrigent also argues that Arista and Dr. Houh do not, with enough specificity, explain *how* Wright uses in its bandwidth calculation the other alleged examples of “parameters of the service,” such as minimum or maximum bandwidth, quality of service guarantees, or whether it is a high-bandwidth service like VoIP and VOD. *Id.* at 10–13 (citing *Xerox Corp v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (PTAB Aug. 24, 2022)).

We disagree with Corrigent that Arista’s argument that Wright teaches determining bandwidth requirements “based on parameters of the service” is insufficient at this stage. Limitation 1.3 does not explicitly specify any particular *way* in which the bandwidth requirements must be determined based on parameters of the service. Wright’s teachings must be read in light of the background knowledge in the art and the “inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418. As we discuss above, we agree for this decision that a person of ordinary skill in the art would have had a working knowledge of network communications techniques and bandwidth management methodologies. *See supra* Section IV.A. The preliminary evidence suggests that such a person would have had reason, and sufficient technical background, to determine bandwidth requirements based on parameters such as minimum or maximum

bandwidth, quality of service guarantees, or the needs of a high-bandwidth service such as VoIP or VOD.¹³

Alternatively to its arguments based on Wright, Arista argues that Holender '699 also teaches determining bandwidth requirements based on parameters of the service including “maximum allowed blocking value” (which “is similar to Wright’s disclosure of a minimum and maximum bandwidth”) and also “teaches how to derive the normalized logical link capacities associated with a physical link based on variables including, among others, the capacity of the physical link” according to a mathematical formula. Pet. 29–30 (citing Ex. 1007, 3:9–15, 6:4–10, 6:48–8:58; Ex. 1003 ¶¶ 80–81; Ex. 1021 ¶ 122); Pet. 12–15 (addressing the alleged motivation to combine Holender '699 with Baker and Wright); *See* Prelim. Resp. 13–16 (Corrigent’s response to these arguments). In light of our finding above that Wright teaches determining bandwidth requirements “based on parameters of the service,” we need not address Arista’s alternative argument at this stage.

For the above reasons, we find that Arista has sufficiently shown, at this stage, that Baker, in view of Wright and Holender '699, teaches limitation 1.3.

¹³ In light of our determinations, we need not specifically determine, at this stage, whether Wright’s bandwidth-determination requirement (step 508) depends on the logical connectivity requirements received in step 504. *See* Ex. 1006, Fig. 5.

6. *Limitations 1.4 and 1.5*

Limitation 1.4 recites “mapping the connection topology to the physical topology, so that each of the logical connections is associated with one or more links of the physical topology.” Ex. 1001, 13:45–48. Arista argues that Baker discloses this limitation because it includes “multiple disclosures and examples of overlaying or mapping virtual paths to a physical topology.” Pet. 30–32 (citing Ex. 1005 ¶¶ 32, 51, 53–54, 69–70, 78–85, Figs. 1, 4, 10; Ex. 1003 ¶¶ 87–89).

Limitation 1.5 recites “allocating a bandwidth for the service on each of the links in response to the bandwidth requirements of the logical connections and to the mapping.” Ex. 1001, 13:49–51. Arista argues that Baker generally discloses allocating network resources such as bandwidth as part of an overlay procedure, while acknowledging the need to ensure that “sufficient bandwidth is available.” Pet. 32 (quoting Ex. 1005 ¶ 9) (citing Ex. 1005 ¶¶ 16, 51–56, 62, Fig. 3; Ex. 1003 ¶¶ 90–91). Arista then turns to Wright for “provid[ing] further details on ensuring the available bandwidth is sufficient for the service.” *Id.* (citing Ex. 1003 ¶ 92).

In particular, Arista argues that Wright teaches calculating bandwidth requirements for physical links within the “restricted topology” defined in part by the logical connectivity requirements. *See* Pet. 33 (citing Ex. 1006 ¶¶ 5, 15–16, 24; Ex. 1003 ¶¶ 93–94). According to Arista, “[t]he bandwidth reservations are for the physical links even if Wright’s ‘links within the restricted topology’ . . . references the virtual links: ‘only the bandwidth actually required is reserved on the *links 108*’ (i.e., physical links 108).” *Id.* (quoting Ex. 1006 ¶ 24; and then quoting Ex. 1006 ¶ 17). Arista contends that “[i]t would have been obvious for reserving bandwidth on those virtual

links to include reserving bandwidth on the underlying physical links (*“in response to . . . the mapping”*).” *Id.* (omission in original) (citing Ex. 1003 ¶¶ 94–95); *see also* Pet. 34–36 (citing Ex. 1006 ¶¶ 14, 17, 24, Fig. 5; Ex. 1005 ¶¶ 16, 51–56, 62; Ex. 1003 ¶¶ 96–98) (arguing that Wright’s Figure 5 conveys to a person of ordinary skill in the art that the bandwidth allocations in step 510 are based on the logical bandwidth requirements calculated in step 508).¹⁴

Arista also argues that it would have been obvious to combine Baker’s method with Wright’s further teachings about bandwidth allocation because “Wright provides further details about” Baker’s disclosure of ways to overlay a logical topology onto a physical topology, so a person of ordinary skill in the art “would have been motivated to turn to Wright” for such details. Pet. 8 (citing Ex. 1005 ¶ 30; Ex. 1003 ¶ 39); *see also id.* at 8–9 (citing Ex. 1005 ¶¶ 12, 16–18, 24, 37–38, 62, 80; Ex. 1006 ¶¶ 3, 5, 15, 25; Ex. 1003 ¶¶ 39–41). And according to Arista, modifying Baker with Wright’s teachings is “nothing more than the combination of known elements . . . according to known methods . . . to yield predictable results.” Pet. 11–12 (citing Ex. 1003 ¶ 47; Ex. 1021 ¶¶ 102–104).

Arista also contends that there would have been a reasonable expectation of success in making this combination, which would have been

¹⁴ For analogous limitations in independent claim 12, Arista relies on Holender, in addition to Baker and Wright, as further teaching a specific mapping between logical connections and physical links and the use of that mapping to allocate bandwidths to each link. *See, e.g.*, Pet. 65–66. Because of our determination for claim 1, we need not address those uncontested arguments at this stage.

within the skillset of a person of ordinary skill in the art. Pet. 9–11 (citing Ex. 1005 ¶¶ 13, 16, 30, 37, 47, 51–52; Ex. 1006 ¶¶ 3–7, 14–18, 24; Ex. 1003 ¶¶ 42–46, 48; Ex. 1021 ¶¶ 100–101)

In response, Corrigent argues that Arista has not sufficiently shown that Baker in view of Wright teaches that the bandwidth allocation step of limitation 1.5 is in response to “the mapping” which, according to Corrigent, refers back to the logical-to-physical mapping of limitation 1.4 for which Arista relies on Baker. Prelim. Resp. 16–18 (citing Ex. 1001, 8:21–51, 8:38–49, Fig. 3). According to Corrigent, Baker’s mapping “simply maps nodes to other nodes, *i.e.*, it establishes the virtual connections between nodes,” and does not “associate each logical connection ‘with one or more links in the physical topology’” as limitation 1.4 requires. *Id.* at 18–19 (citing Ex. 1005 ¶¶ 32, 51, 53–54, Fig. 4). Corrigent also contends that Baker’s figures only show logical connections between the various nodes, but do not indicate which specific physical links correspond to each logical connection. *Id.* at 19–20 (citing Ex. 1005, Figs. 2, 4).

Based on the preliminary evidence, we find that Arista has sufficiently shown that Baker discloses limitation 1.4 and that Baker, in view of Wright, teaches limitation 1.5. In particular, we disagree with Corrigent that Baker does not disclose linking particular logical connections to particular physical links. For example, in the context of Baker’s Figure 11 (reproduced *supra* Section IV.C.1), Baker discloses that logical connection L1 is mapped to physical link S0 in one direction and links S1–S3 in the opposite direction, and similarly, logical connection L2 is mapped to either links S0 and S1 or links S2 and S3, depending on the direction. *See* Ex. 1005 ¶¶ 80–81, Fig. 11. Also, considering Baker as a whole, especially in view of Wright, the

preliminary evidence suggests that a person of ordinary skill in the art would have understood that Wright’s bandwidth-allocation step 510, when applied to Baker’s disclosure, would have been based not just on the bandwidth requirements but also on Baker’s logical-to-physical mapping (corresponding to the specific physical links within Wrights “restricted topology”).

Alternatively to its argument based on Baker and Wright on limitation 1.5, Arista also argues that Holender ’699 explicitly teaches allocating bandwidth for the service on each of the links in response to bandwidth requirements of the logical connections, which is in response to the mapping “because the allocation first requires ‘a set of logical networks [being] established on top of a physical network by associating different parts of the traffic and different parts of the physical transmission and switching resources’ (the ‘mapping’).” Pet. 36–38 (alteration in original) (quoting Ex. 1007, 9:4–7) (citing Ex. 1007, 2:26–32, 5:63–6:2; Ex. 1021 ¶ 128) ; Pet. 12–15 (addressing the alleged motivation to combine Holender ’699 with Baker and Wright); Prelim. Resp. 21–22 (Corrigent’s arguments to the contrary). In light of our finding above that Baker in combination with Wright teaches limitation 1.5, we need not address Arista’s alternative argument at this stage.

Thus, we find Arista’s arguments sufficiently persuasive that Baker, in view of Wright and Holender ’699, teaches limitations 1.4 and 1.5. For all the above reasons, we determine that Arista is reasonably likely to prevail in showing that claim 1 is unpatentable under § 103(a) as obvious over Baker in view of Wright and Holender ’699.

D. OTHER CLAIMS

Claims 12, 24, 25, and 28 are also independent, and the remaining challenged claims are dependent. See Ex. 1001, 13:53–18:4. Corrigent does not specifically address Arista’s challenge to any claims other than claim 1, and Corrigent does not raise distinct arguments for Arista’s second, third, and fourth grounds relying on Holender and Zheng in addition to Baker and Wright. *See* Prelim. Resp. 4–22.

Because Arista has shown a reasonable likelihood of prevailing with respect to claim 1, we will institute on all claims and all grounds raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); *AC Techs. S.A. v. Amazon.com, Inc.*, 912 F.3d 1358, 1364 (Fed. Cir. 2019) (“[I]f the Board institutes an IPR, it must . . . address all grounds of unpatentability raised by the petitioner.”).

V. CONCLUSION

For the reasons above, Arista has shown that there is a reasonable likelihood it would prevail with respect to at least one of the claims challenged in the Petition. Thus, we institute trial on all asserted grounds and all challenged claims.

VI. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–30 of the ’431 patent is instituted with respect to all the grounds set forth in the Petition;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, *inter partes* review of the '431 patent commences on the entry date of this Order, and the Board hereby gives notice of the institution of a trial; and

FURTHER ORDERED that within 14 calendar days of this Decision, Petitioner Arista must, after meeting and conferring with Corrigent and with the parties in the IPR2023-00169 proceeding, contact the Board via email to discuss an order consolidating this proceeding with IPR2023-00169 under 35 U.S.C. § 315(d) and 37 C.F.R. § 42.122(a), including any proposals by the parties to modify the schedule in IPR2023-00169 in light of such consolidation.

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Patent 7,330,431 B2

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