

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CLOUDFLARE, INC.,
Petitioner,

v.

SABLE NETWORKS, INC.,
Patent Owner.

IPR2021-00909
Patent 8,243,593 B2

Before STACEY G. WHITE, GARTH D. BAER, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

DIRBA, *Administrative Patent Judge*.

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

On May 7, 2021, Cloudflare, Inc. (“Petitioner”) and SonicWall Inc.¹ filed a Petition requesting *inter partes* review of claims 1–44 of U.S. Patent No. 8,243,593 B2 (Ex. 1001, “the ’593 patent”). Paper 1 (“Pet.”). Sable Networks, Inc.² (“Patent Owner”) timely filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). With our authorization, Petitioner filed a pre-institution Reply (Paper 9 (“Prelim. Reply”)), and Patent Owner filed a pre-institution Sur-Reply (Paper 11 (“Prelim. Sur-Reply”)).

An *inter partes* review may not be instituted unless “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).

Having reviewed the parties’ papers and the evidence of record, we are not persuaded to discretionarily deny institution, and we determine that Petitioner has shown a reasonable likelihood it will prevail in establishing the unpatentability of at least one challenged claim. Accordingly, we institute an *inter partes* review.

I. BACKGROUND

A. Related Matters

The parties indicate that the ’593 patent has been asserted in several district court lawsuits, including *Sable Networks, Inc. v. Cloudflare, Inc.*, 6:21-cv-00261 (W.D. Tex.) (the “Litigation”) and *Sable Networks, Inc. v.*

¹ SonicWall Inc. was subsequently terminated from this proceeding following a settlement with Patent Owner. Paper 15 (Termination Order).

² Patent Owner also identifies Sable IP, LLC as a real party in interest. Paper 5, 1.

SonicWall Inc., 6:21-cv-00190 (W.D. Tex.). Pet. xii–xiii; Paper 5, 1–3. The parties do not identify any related *inter partes* review proceedings.

B. The Petition’s Asserted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 1):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 4–7, 17, 18, 25–27, 37, 38	103(a) ³	Yung ⁴
9–13, 19–24, 29–33, 39–44	103(a)	Yung, Copeland ⁵
3	103(a)	Yung, Four-Steps Whitepaper ⁶
8, 14–16, 28, 34–36	103(a)	Yung, Copeland, Ye ⁷

As noted below, we query whether dependent claims 17, 18, 37, and 38 should be included in the Yung-Copeland ground above. *See infra* § III.E.4.

In support of its contentions, Petitioner relies on the testimony of Dr. Kevin Jeffay. Ex. 1003.

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 103 effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA version of § 103.

⁴ US 7,664,048 B1, filed Nov. 24, 2003, issued Feb. 16, 2010 (Ex. 1005).

⁵ US 7,185,368 B2, filed Nov. 30, 2001, issued Feb. 27, 2007 (Ex. 1007).

⁶ “Four Steps to Application Performance Across the Network with Packeteer’s PacketShaper®,” *retrieved from* https://web.archive.org/web/20030317051910/http://packeteer.com/PDF_files/4steps.pdf (Ex. 1006).

⁷ US 7,295,516 B1, filed Nov. 13, 2001, issued Nov. 13, 2007 (Ex. 1008).

C. Summary of the '593 Patent

The '593 patent is titled “Mechanism for Identifying and Penalizing Misbehaving Flows in a Network,” and the application that led to this patent was filed on December 22, 2004. Ex. 1001, codes (54), (22).

The Specification begins by explaining that “peer-to-peer (P2P) traffic on the Internet has grown immensely in recent years . . . despite the fact that the number of P2P users is quite small.” Ex. 1001, 1:7–13. As a result, this traffic uses a disproportionate amount of bandwidth, so it is viewed by Internet service providers as “abusive/misbehaving traffic that should be controlled and penalized.” *Id.* at 1:14–18. Previously, P2P traffic could be identified by port numbers or signatures, but the '593 patent explains that protocols evolved to evade these identification techniques. *Id.* at 1:19–45.

The '593 patent addresses this problem by identifying P2P traffic (and other “misbehaving information packet flows”⁸) using its “observed behavior,” which “cannot be hidden.” Ex. 1001, 1:46–67. Specifically, the Specification describes a method that: (1) maintains “behavioral statistics” for a flow, (2) determines whether the flow is “exhibiting undesirable behavior” based on the statistics, and (3) if so, enforces a penalty on the flow. *Id.* at 2:1–51; *see also id.* at Fig. 3. The “behavioral statistics” of a flow include, for example:

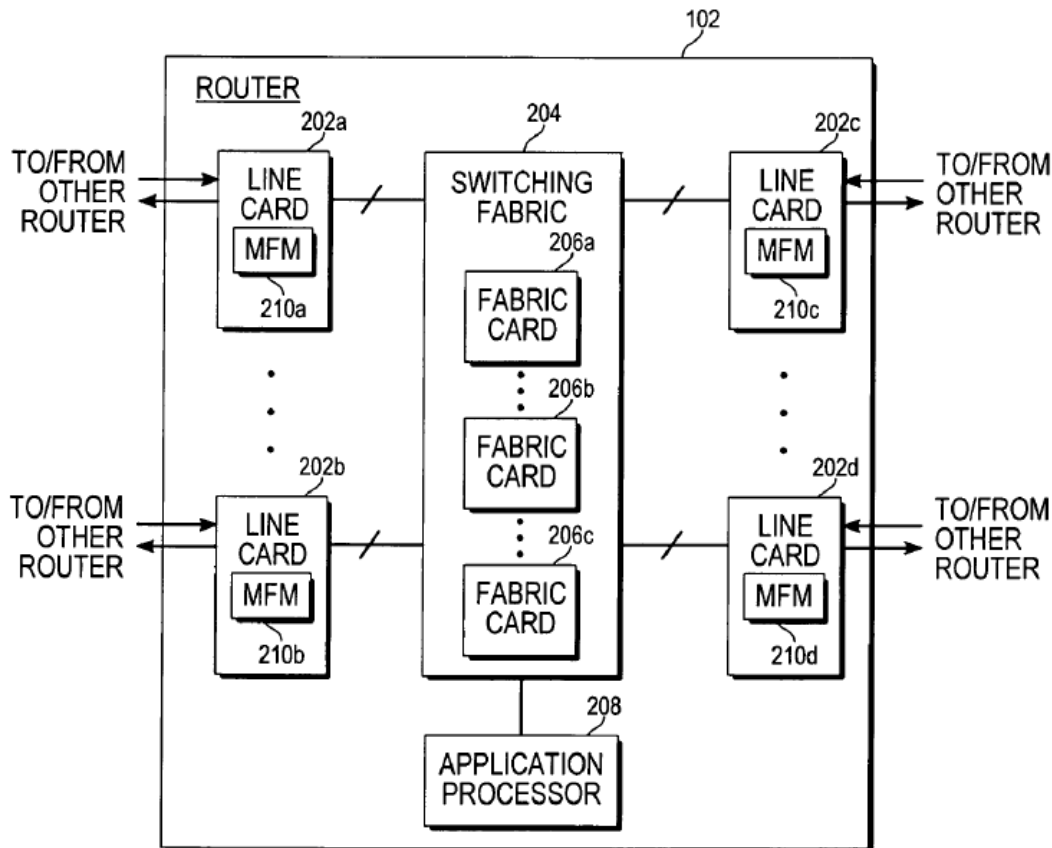
a total byte count (sum of all of the bytes in all of the packets of the flow that have been processed up to the current time), a life duration (how long the flow has been in existence since inception), a flow rate (derived by dividing the total byte count by the life duration of the flow), and an average packet size

⁸ “For purposes of the present invention, a flow is a series of packets that are related in some manner.” Ex. 1001, 5:16–17. The header of a packet is used to associate it with a particular flow. *Id.* at 5:17–24; *see id.* at 7:3–13.

(derived by dividing the total byte count by the total number of packets in the flow that have been processed).

Id. at 2:6–13; *see id.* at Fig. 4, 7:20–29 (describing example flow block storing behavioral statistics). The method may involve computing a “badness factor,” which “provides an indication as to whether the flow is exhibiting undesirable behavior” and may also indicate “the degree to which the flow is misbehaving.” *Id.* at 2:20–26; *see id.* at 7:54–65 (exemplary badness factor calculation). The penalty that is enforced on the flow may be “an increased drop rate,” which may have the effect of correcting the flow’s behavior. *Id.* at 2:27–51; *see id.* at 9:52–10:3 (explaining how dropping a packet can correct a flow’s behavior).

Figure 2 (below) shows a router that implements the method:



Ex. 1001, Fig. 2, 2:58–59. As shown above, Figure 2 illustrates router 102, which includes: four line cards 202a-d that each connect to another router (not shown), switching fabric 204 that interconnects line cards 202, and application processor 208 that determines forwarding paths. *Id.* at 3:39–50, 3:59–64, 4:17–20. Each line card 202 includes “a misbehaving flow manager (MFM) 210 for keeping track of flows, determining whether the flows are exhibiting undesirable behavior, and enforcing a penalty on the flows if they are exhibiting undesirable behavior.” *Id.* at 5:44–48.

D. Challenged Claims

Petitioner challenges all 44 claims of the '593 patent. Of these, claims 1–5, 9, 25, and 29 are independent. Independent claims 1 and 9 are illustrative for purposes of this Decision:

1. A machine-implemented method for processing a single flow, the flow comprising a plurality of packets, and the method comprising:

creating a flow block as the first packet of a flow is processed by a single router;

said flow block being configured to store payload-content-agnostic behavioral statistics pertaining to said flow, regardless of the presence or absence of congestion;

said router updating said flow block with the payload-content-agnostic behavioral statistics of each packet belonging to said flow, as each packet belonging to said flow is processed by said router, regardless of the presence or absence of congestion;

said router heuristically determining whether said flow exhibits undesirable behavior by comparing at least one of said payload-content-agnostic behavioral statistics to at least one pre-determined threshold value; and

upon determination by said router that said flow exhibits undesirable behavior, enforcing, relative to at least one packet, a penalty;

wherein the preceding steps are performed on said router without requiring use of inter-router data.

Ex. 1001, 10:28–49.

9. A machine implemented method for processing a flow, the flow comprising a series of information packets, the method comprising:

maintaining a set of behavioral statistics for the flow, wherein the set of behavioral statistics is updated based on each information packet belonging to the flow, as each information packet belonging to the flow is processed, regardless of the presence or absence of congestion; and

computing, based at least partially upon the set of behavioral statistics, a badness factor for the flow, wherein the badness factor provides an indication of whether the flow is exhibiting undesirable behavior.

Id. at 11:63–12:8.

II. CONSIDERATION OF DISCRETIONARY DENIAL

Patent Owner argues that we should exercise our discretion under 35 U.S.C. § 314 and deny institution given the status of the Litigation. *See* Prelim. Resp. 64–70; Prelim. Sur-Reply. Petitioner argues that discretionary denial is unwarranted. *See* Pet. 76–80; Prelim. Reply.

A. Legal Standard for Exercising Discretion under Section 314(a)

Under § 314(a), the Director has discretion to deny institution of an *inter partes* review. *See 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., Inc. 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 determining whether to exercise discretion on behalf of the Director, we are guided by the Board’s precedential decision in *NHK Spring Co. v. Intri-Plex Techs, Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential). In *NHK*, the Board found that the “advanced state of the district court proceeding” was a “factor that weighs in favor of denying” the petition under § 314(a). *NHK*, Paper 8 at 20. The Board determined that “[i]nstitution of an *inter partes* review under these circumstances would not be consistent with ‘an objective of the AIA . . . to provide an effective and efficient alternative to district court litigation.’” *Id.* (citing *Gen. Plastic Indus. Co., Ltd. v. Canon Kabushuki Kaisha*, IPR2016-01357, Paper 19, 16–17 (PTAB Sept. 6, 2017) (precedential in relevant part)).

The Board’s precedential decision in *Fintiv* sets forth six factors that we consider when determining whether to use our discretion to deny institution due to the advanced state of a parallel proceeding. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 3 (PTAB Mar. 20, 2020) (precedential) (Order) (“*Fintiv*”). When determining whether to exercise discretion to deny institution under *NHK* due to an earlier trial date, we consider the following factors (“*Fintiv* factors”):

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.

Id. at 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.* 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 (“CTPG”),⁹ 58). We address the *Fintiv* factors below.

B. Analysis of Fintiv Factors

1. Factor 1: Whether a Stay Exists or Is Likely to Be Granted if a Proceeding Is Instituted

The parties agree that no stay has been requested in the Litigation. Pet. 76–77; Prelim. Resp. 65. Although Patent Owner argues that the district court “has expressly stated on multiple occasions that a stay is disfavored,” Patent Owner does not point to any evidence regarding the Litigation specifically. Prelim. Resp. 66.

This factor does not weigh in favor of or against exercising our discretion because no stay has been requested and there is no evidence regarding the likelihood of a stay in the Litigation. *See Apple Inc. v. Fintiv*,

⁹ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

Inc., IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative) (Institution Decision) (“*Fintiv II*”) (holding that “[t]his factor does not weigh for or against discretionary denial” when neither party requested a stay); *Sand Revolution II, LLC v. Continental Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) (“*Sand Revolution*”) (“In the absence of specific evidence, we will not attempt to predict how the district court in the related district court litigation will proceed . . .”).

Accordingly, we determine that this factor is neutral.

2. *Factor 2: Proximity of the Court’s Trial Date to the Board’s Projected Statutory Deadline*

Petitioner argues that “no trial date has been scheduled in the related litigation.” Pet. 77. Patent Owner responds that the district court “expects trial to begin January 12, 2023,” approximately two months after the final written decision would be due in this proceeding. Prelim. Resp. 67.¹⁰ Petitioner replies that this is merely an estimate based on the court’s “Order Governing Proceedings” (OGP). Prelim. Reply 1–2 (citing Ex. 2002; Ex. 2003, 11 & n.11; Ex. 1067). According to Petitioner, the court’s OGP creates “at most a placeholder,” and the district court has not actually scheduled a trial date for the Litigation. *Id.* at 2. Patent Owner does not dispute this characterization. *See* Prelim. Sur-Reply 2.

¹⁰ Petitioner notes that Patent Owner’s Exhibit 2002 includes only the most recent email in the identified email chain. *See* Prelim. Reply 1 n.1 (citing Ex. 1061); *compare* Ex. 2002, *with* Ex. 1061. Although we do not rely on the omitted portion of the email chain, we caution Patent Owner not to include unidentified and unexplained redactions in its exhibits.

There is no trial date scheduled for the Litigation. The evidence indicates that trial may be scheduled at the conclusion of the upcoming *Markman* hearing. Ex. 2003, 11; Ex. 1067 (parties' proposed scheduling order); *see also* Ex. 1061, 1 (scheduling *Markman* hearing for January 12, 2022). Given the absence of a scheduled trial date, significant uncertainty surrounds when a trial will occur.

Accordingly, we determine this factor weighs against exercising discretion to deny institution.

3. Factor 3: Investment in the Parallel Proceeding by the Court and Parties

Petitioner argues that this factor strongly favors institution because the Litigation is in the early stages. Pet. 78. Patent Owner argues that there has been relevant activity in the Litigation because the court scheduled a *Markman* hearing for January 12, 2022. Prelim. Resp. 68 (citing Ex. 2002). At the time of the Preliminary Reply, Petitioner's invalidity contentions were due on September 15, 2021, and claim construction proceedings had not begun. Prelim. Reply 3.

The Litigation is in its very early stages. According to the parties' exhibits, Patent Owner has served preliminary infringement contentions, Petitioner has served preliminary invalidity contentions, and the parties have begun identifying their claim construction positions. Ex. 1067, 1–3. However, the *Markman* hearing has not yet occurred, and fact and expert discovery have not yet begun. *Id.* at 3–4; Ex. 1061, 1. Because we consider the investment “at the time of the institution decision,” not at some later date (*Fintiv*, Paper 11, 9–10), the *Markman* hearing does not show investment in the parallel proceeding. Accordingly, we determine that the parties and the

court have invested minimal resources in the Litigation, which weighs against discretionary denial.

Moreover, the undisputed evidence here shows that Petitioner acted diligently, filing its Petition only seven weeks after service of the complaint and well before preliminary infringement contentions were served. Pet. 76, 78–79; *see also* Ex. 1067. This further weighs against discretionary denial. *See Fintiv*, Paper 11 at 11 (explaining that, in cases where the petitioner acted expeditiously, “this fact has weighed against exercising the authority to deny institution under *NHK*”).

Accordingly, this factor weighs strongly against exercising discretion to deny institution.

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

In the Petition, Petitioner stipulates that “Petitioners will not raise invalidity challenges to the ’593 Patent in the litigation relying on the grounds or the prior art references (i.e., Yung, Copeland, Four-Steps Whitepaper, and Ye) asserted in this IPR if instituted.” Pet. 79. Petitioner contends that this “strongly favors institution.” *Id.* According to Patent Owner, Petitioner’s “narrow stipulation does not eliminate the possibility that substantially similar art and arguments will be raised in the [Litigation],” and thus, this factor “favors denying institution.” Prelim. Resp. 68–69.

Petitioner’s stipulation here is slightly broader than the stipulation made by the petitioner in *Sand Revolution*. *See* Paper 24 at 11–12. There, the Board found the “stipulation . . . mitigate[d] to some degree the concerns of duplicative efforts between the district court and the Board, as well as

concerns of potentially conflicting decisions,” and weighed marginally in favor of institution. *Id.* at 12. Here, Petitioner also stipulates not to raise invalidity challenges relying on the same asserted references, which further mitigates these concerns, even though it does not eliminate the possibility of overlap.

Accordingly, we determine this factor weighs against exercising discretion to deny institution.

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

Although Petitioner is the defendant in the district court action, the final written decision will likely issue before the trial begins. If this were the outcome, the fact that Petitioner is the defendant in the district court case would actually weigh in favor of institution. *See MED-EL Elektromedizinische Geräte Ges.m.b.H v. Advanced Bionics AG*, IPR2020-00190, Paper 15 at 14–15 (PTAB June 3, 2020) (Institution Decision) (explaining that overlap of issues and parties, especially with an uncertain trial date, weighs in favor of institution because petitioner would be estopped in district court from raising the same issues upon issuance of the Board’s final written decision).

Accordingly, we determine this factor weighs against exercising discretion to deny institution.

6. Factor 6: Other Circumstances that Impact the Board’s Exercise of Discretion, Including the Merits

Petitioner contends that the Petition’s strong merits weigh in favor of institution. Pet. 80. Petitioner further argues that the challenged patent “is

asserted in six lawsuits in three district courts,” where the Board can “resolve unpatentability in a single, centralized venue.” *Id.*

Patent Owner contends that this proceeding would be inefficient because “patent claims covering closely related technology and accused products will be litigated by the same parties to a jury.” Prelim. Sur-Reply 2; *see also* Prelim. Resp. 66–67. Patent Owner explains that the Litigation involves three other patents that are also directed to “computer networking technologies.” Prelim. Sur-Reply 1; Prelim. Resp. 66. According to Patent Owner, Petitioner filed petitions challenging those other patents, but did not challenge some of the asserted claims. Prelim. Resp. 66–67.

The parties’ arguments for this factor are unavailing. We do not agree that other patents (even those asserted in the Litigation) or other proceedings (even those involving the challenged patent) are germane to whether we should institute this *inter partes* review, which currently involves only one Petitioner and one challenged patent. In particular, the parties have not persuaded us that those other patents or proceedings are relevant here.¹¹ Moreover, we find that Petitioner has demonstrated a reasonable likelihood it will prevail, and such a determination weighs neither for nor against the exercise of discretion to deny institution of *inter partes* review.

Accordingly, we determine that this factor is neutral.

¹¹ Contrary to Patent Owner’s argument (*see* Prelim. Resp. 66), we consider “the patentability disputes between the parties” that relate to *the challenged patent*, not any and all patentability disputes between the parties. *See Fintiv*, Paper 11 at 9.

7. *Balancing the Fintiv Factors*

We have considered the circumstances and facts before us in view of the *Fintiv* factors. Because our analysis is fact driven, no single factor is determinative of whether we exercise our discretion to deny institution under § 314(a). Further, we take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review” when evaluating these factors. *Fintiv*, Paper 11 at 6. Having evaluated all of the factors on this record, we do not exercise our discretion under § 314(a) to deny institution of *inter partes* review.

III. ANALYSIS

A. *The Level of Ordinary Skill in the Art*

Petitioner asserts that the level of ordinary skill in the art corresponds to “an undergraduate degree (or equivalent) in electrical engineering, computer science, or comparable subject” and “3–5 years of academic or industry experience in computer networking or comparable industry experience.” Pet. 11 (citing Ex. 1003 ¶ 27).

At this stage, Patent Owner does not address the level of ordinary skill in the art. *See generally* Prelim. Resp.

We are satisfied that Petitioner’s proposed definition generally comports with the level of skill necessary to understand and implement the teachings of the ’593 patent and the asserted prior art. This definition is also supported by the testimony of Dr. Jeffay. *See* Ex. 1003 ¶ 27. For purposes of this Decision, we adopt Petitioner’s proposed level of skill, as articulated above.

To the extent the level of ordinary skill in the art is in dispute or makes a material difference in the obviousness analysis, the parties should brief their respective positions in this regard during trial.

B. Claim Construction

We interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2019). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

Petitioner contends the challenged claims include ten means-plus-function limitations that should be interpreted under 35 U.S.C. § 112 ¶ 6 (Pet. 11), and that no other terms require construction for purposes of this proceeding (*id.* at 12). For each means-plus-function limitation, Petitioner identifies a construction for use in this proceeding. *Id.* at 11–14.

At this stage, Patent Owner does not expressly address the construction of any claim terms or phrases. *See generally* Prelim. Resp.

On this record, we agree with Petitioner that the identified limitations—which each recite “means for” performing a particular step—are means-plus-function limitations that should be interpreted under 35 U.S.C. § 112 ¶ 6. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (en banc) (holding that “use of the word ‘means’ creates a presumption that § 112, ¶ 6 applies”). We are also persuaded that Petitioner correctly identifies the recited functions for these limitations, and

we agree that the Specification links the misbehaving flow manager (“MFM 210”) with each of the recited functions. *See* Pet. 12–14 (citing Ex. 1001, 6:5–47, 7:37–50, 7:57–8:37). Moreover, as Petitioner observes, the Specification states that MFM 210 can be implemented by “one or more processors on a line card 202 [that] execute one or more sets of instructions” or “hardwired logic components.” *See id.* at 11–12 (alteration in original) (citing Ex. 1001, 5:49–57, Fig. 2; Ex. 1003 ¶ 79).

For purposes of this Decision, we apply the constructions identified by Petitioner. These are shown in the table below:

Limitation	Function	Structure
“means for maintaining a set of behavioral statistics for the flow...” (claims 25 and 29)	maintaining a set of behavioral statistics for the flow	MFM 210 implemented on processors
“means for determining...whether the flow is exhibiting undesirable behavior” (claim 25)	determining whether the flow is exhibiting undesirable behavior	MFM 210 implemented on processors
“means for enforcing...[a/the] penalty on the flow” (claims 25 and 32)	enforcing a penalty on the flow	MFM 210 implemented on processors
“means for computing...a badness factor for the flow” (claim 29)	computing a badness factor for a flow	MFM 210 implemented on processors
“means for determining...a penalty to impose on the flow” (claim 31)	determining a penalty to impose on a flow	MFM 210 implemented on processors
“means for determining an increased drop rate to impose on one or more information packets belonging to the flow” (claim 37)	determining an increased drop rate to impose on one or more information packets belonging to a flow	MFM 210 implemented on processors

Limitation	Function	Structure
“means for imposing [an/the] increased drop rate on the flow” (claims 27 and 38)	imposing an increased drop rate on a flow	MFM 210 implemented on processors
“means for receiving a particular information packet belonging to the flow” (claims 43 and 44)	receiving a particular information packet belonging to a flow	MFM 210 implemented on processors
“means for determining whether to forward the particular information packet to a destination” (claim 43)	determining whether to forward a particular information packet to a destination	MFM 210 implemented on processors
“means for updating [...] the set of behavioral statistics to reflect processing of the particular information packet” (claims 43 and 44)	updating the set of behavioral statistics to reflect processing of the particular information packet	MFM 210 implemented on processors

Based on the record before us, we do not find it necessary to provide express claim constructions for any other terms or phrases. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe 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))).

During the trial, the parties should directly address any claim construction adopted in this Decision if the party contends we should not adopt that construction in the final written decision.

C. Law on Obviousness

The legal 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 ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.¹² *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966). One seeking to establish obviousness based on more than one reference also must articulate sufficient reasoning with rational underpinnings to combine teachings. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

D. Summary of Asserted Prior Art References

1. Yung (Ex. 1005)

Yung is titled “Heuristic Behavior Pattern Matching of Data Flows in Enhanced Network Traffic Classification.” Ex. 1005.

Yung classifies data flows by comparing them to “known application behavior patterns.” Ex. 1005, Abstract. According to Yung, its technique allows for classification of encrypted, compressed, or proprietary network traffic. *Id.* at 5:43–6:1; *see id.* at 4:43–60 (noting that peer-to-peer applications employ encryption and compression to obscure identification). For each flow, Yung stores a data block object (also called a flow object) that includes “various attributes of the flow,” such as “packet count, byte count, first packet time, last packet time, etc.” *Id.* at 8:5–11, 17:42–52, 25:8–11. Yung uses the data block object to classify the data flow. *E.g., id.* at 24:13–18, 24:27–51. Yung may also enforce bandwidth utilization controls on the flow, such as a discard policy that causes packets to be dropped. *E.g., id.* at 19:53–58, 20:13–15, 24:63–25:1.

¹² The current record does not include allegations or evidence of objective indicia of nonobviousness.

Figure 3 (reproduced below) is a block diagram of an exemplary bandwidth management device 130 that implements Yung's techniques. Ex. 1005, 6:21–23, 16:8–10.

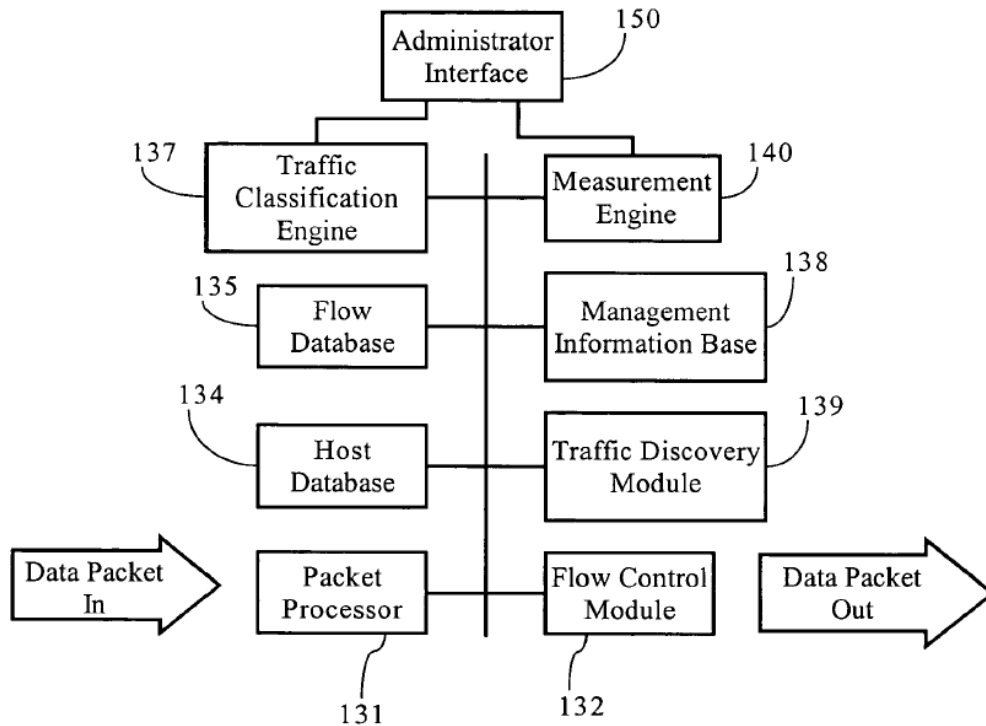


Fig. 3

Figure 3 (above) shows bandwidth management device 130 that includes packet processor 131, flow control module 132, and traffic classification engine 137. Yung explains that packet processor 131 detects new data flows and “construct[s] data structures including attributes characterizing the data flow.” *Id.* at 16:15–17, 17:42–49. Flow control module 132 “enforce[s] bandwidth utilization controls on data flows traversing bandwidth management device 130.” *Id.* at 16:17–19. Traffic classification engine 137 “analyze[s] data flow attributes and identif[ies] traffic classes corresponding to the data flows.” *Id.* at 16:20–22.

Figure 7 (reproduced below) includes a flow chart of an exemplary method of bandwidth management device 130. Ex. 1005, 23:16–20.

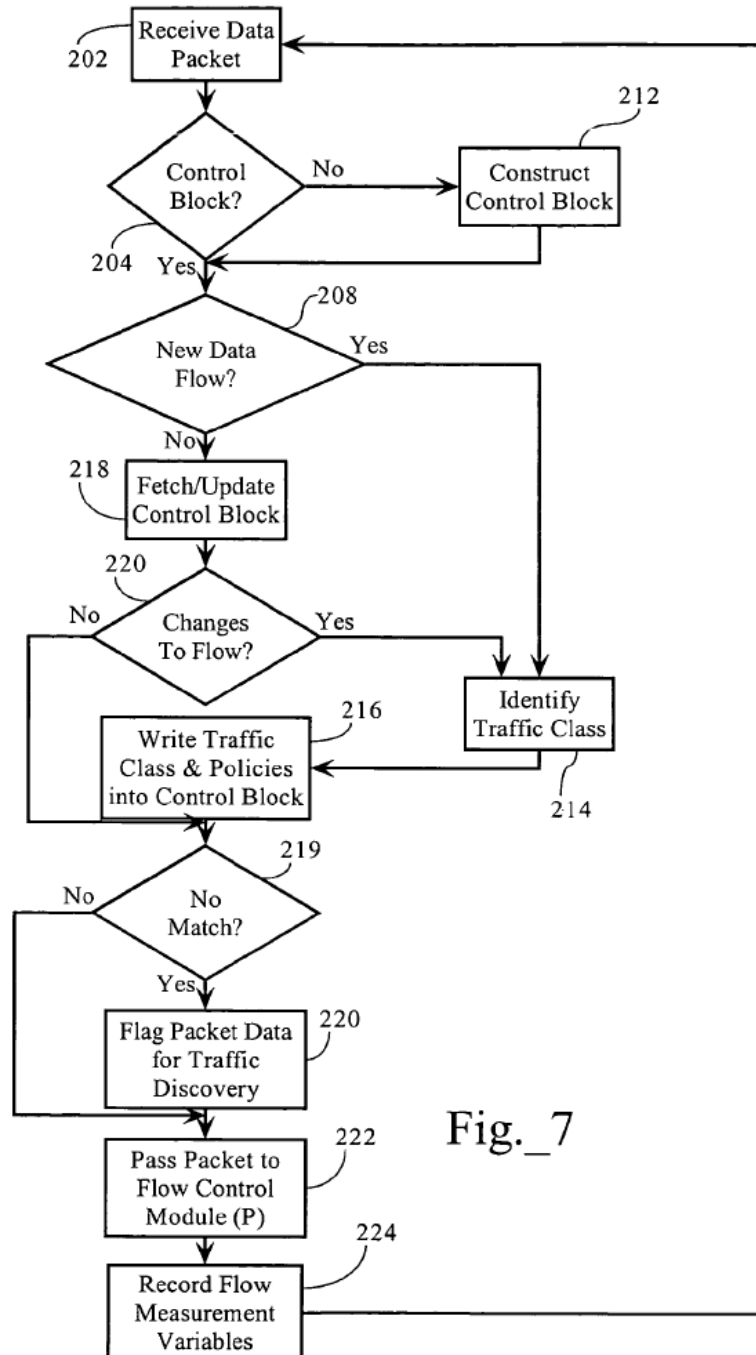


Fig._7

As shown above, in Figure 7, packet processor 131 receives a data packet (step 202), determines whether a control block object already exists corresponding to the data flow (step 204), and if not, constructs a control

block object for the flow (step 212). *Id.* at 23:23–30. A traffic class may be identified (step 214), and ultimately, the packet is passed to flow control module, which enforces appropriate bandwidth utilization controls on the data packet (step 222). *Id.* at 24:13–18, 24:63–25:1. Finally, “packet processor 131 also records or updates various measurement values in the control block object that characterize the flow (e.g., last packet time, packet count, byte count, etc.)” (step 224). *Id.* at 25:8–11.

2. *Copeland (Ex. 1007)*

Copeland describes a “system for detecting intrusions in computer communication networks” by collecting and analyzing statistics for flows traversing the network. Ex. 1007, Abstract, 3:18–35. If a flow appears suspicious, Copeland assigns a “concern index value” to the flow. *Id.* at Abstract, 3:32–35.

In particular, Copeland collects “information about and statistics associated with each flow” and stores this data in a flow data structure corresponding to that flow. Ex. 1007, 7:38–45, 16:12–30. The flow data structure includes, for example, the number of bytes, the number of packets, and time information (such as the time of the first packet and time of the last packet). *Id.* at 7:49–54, 16:37. Copeland analyzes the data to determine if the flow appears to be legitimate traffic or possible suspicious activity. *Id.* at 7:55–57. If a flow appears suspicious, Copeland assigns a concern index (CI) value that “[has] been derived heuristically from extensive network traffic analysis.” *Id.* at 7:57–62. In Figure 6, Copeland provides a table with an exemplary set of concern index values for various events. *Id.* at 7:64–67, 18:19–20. Petitioner annotates this table to show that Copeland describes

using the number of packets as a concern index value. Pet. 51. Petitioner's annotation is reproduced below.

TABLE I

NAME	POTENTIAL INTRUDER	RESPONSE	CI VALUE
POTENTIAL TCP PROBE	TCP PACKETS	RESET PACKETS	NUMBER OF PACKETS
POTENTIAL UDP PROBE	UDP PACKET	ICMP PORT UNAVAILABLEPACKETS	NUMBER OF ICMP PORT UNAVAILABLE PACKETS
HALF-OPEN ATTACK	HIGH NUMBER AND RATE OF SYNS	SYN-ACKS	5000+501 PER SYN-ACK
TCP STEALTH PORT SCAN	MULTIPLE PACKETS FROM SAME SOURCE PORT TO DIFFERENT DESTINATION PORTS	RESETS	8000+1010 PER PORT OVER 4
UDP STEALTH PORT SCAN	MULTIPLE PACKETS FROM SAME SOURCE PORT TO DIFFERENT DESTINATION PORTS	NOTHING OR ICMP PORT UNAVAILABLE	8000+1010 PER PORT OVER 4

FLOW-BASED CI VALUES

As shown above, Petitioner annotates the first row of the table in Figure 6: in the "NAME" column, Petitioner places a red box around the first entry, which states "POTENTIAL TCP PROBE," and Petitioner places a green box in the same row of the "CI VALUE" column, where the entry states "NUMBER OF PACKETS."

3. *Four-Steps Whitepaper (Ex. 1006)*

The Four-Steps Whitepaper is a technical product overview for the PacketShaper® product line from Packeteer, Inc. Ex. 1006, 1. This document describes a bandwidth-management strategy that: (1) classifies network traffic; (2) analyzes traffic; (3) controls traffic; and (4) reports results. *Id.* at 2. In the second step, PacketShaper collects measurements regarding traffic flows, including "[t]hroughput in units of bytes, packets, transactions, connections," "[c]ounts and percentages of retransmitted,

received, tossed, dropped, and good TCP packets,” and “[c]ounts and percentages of TCP connections that were denied by a policy.” *Id.* at 18.

4. *Ye (Ex. 1008)*

Ye provides a mechanism for defending against denial-of-service attacks. Ex. 1008, Abstract. Ye activates its mechanism when a router senses congestion. *Id.*; *see id.* at 9:16–27, Fig. 5 (step 504). “[C]ongestion sufficient to merit application of . . . [Ye’s mechanism] is declared when the router encounters a saturation condition which persists for a pre-selected period of time.” *Id.* at 9:22–27. When activated, Ye’s mechanism compares statistics about the current flow with a corresponding baseline to determine whether the flow is “aggressive.” *Id.* at 10:61–11:7, Fig. 5 (step 516); *see id.* at 11:4–6 (a flow is aggressive if its rate exceeds the baseline rate). If a flow is aggressive, the forwarding rate of the flow is regulated, “e.g., by dropping packets.” *Id.* at 11:4–11, Fig. 5 (steps 518, 529).

E. *Obviousness Ground Based on Yung Alone*

Petitioner contends that the subject matter of claims 1, 2, 4–7, 17, 18, 25–27, 37, and 38 would have been obvious over Yung. Pet. 17–43. Patent Owner contends that Petitioner fails to show three of the requirements of independent claim 1: storing “behavioral statistics for a flow” (Prelim. Resp. 14–16); using a “single router” (*id.* at 16–34); and “enforcing . . . a penalty” on a flow (*id.* at 59–62). Patent Owner contends that Petitioner’s showing for the other independent claims is defective for some or all of the same reasons. *Id.* at 14, 16–17, 59–60.

We have considered the parties’ arguments and the evidence presented at this stage. For the reasons explained below, we determine that

Petitioner has demonstrated a reasonable likelihood that it will prevail in showing that the subject matter of claims 1, 2, 4–7, and 25–27 would have been obvious over Yung alone.

1. Independent Claim 1

- a. “A machine-implemented method for processing a single flow, the flow comprising a plurality of packets, and the method comprising . . .”*

Petitioner contends that Yung discloses the preamble.¹³ Pet. 19–21. Petitioner points to Yung’s Figure 7, which depicts a “method directed to enforcing bandwidth utilization controls on data flows.” *Id.* at 19 (quoting Ex. 1005, 6:35–36). Petitioner contends that this method processes a single flow, which is composed of a plurality of packets. *Id.* at 19–20 (citing Ex. 1005, 2:58–61, 8:3–5, 11:60–62, 12:30–35, 24:13–18, 24:63–25:1, Fig. 7; Ex. 1003 ¶ 120). Petitioner further contends that the method is implemented by a machine (e.g., a bandwidth management device or a gateway). *Id.* at 21 (citing Ex. 1005, 6:8–11, 7:12–18, 15:44–47, Fig. 2).

At this stage, Patent Owner does not dispute Petitioner’s arguments, analysis, or evidence for the preamble. *See generally* Prelim. Resp.

Petitioner’s assertions and explanations are consistent with and supported by the evidence cited by Petitioner. On this record, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it will prevail in showing that Yung discloses the preamble.

¹³ Because Petitioner has shown sufficiently that the recitations in the preamble are satisfied by Yung, we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

b. *“creating a flow block as the first packet of a flow is processed by a single router”*

Petitioner contends that Yung discloses or suggests this limitation. Pet. 21–25. Petitioner asserts that Yung’s control block object (which is also called a flow object) teaches the claimed “flow block.” *Id.* at 21 (citing Ex. 1005, 8:2–12, 23:23–30). Petitioner asserts that Yung’s packet processor 131 creates the control block object as the first packet of a flow is processed—after receiving a packet, packet processor 131 constructs a new control block object if none of the existing objects correspond to the packet. *Id.* at 21–23 (citing Ex. 1005, 16:15–18, 23:23–30, Fig. 7 (steps 202, 204, 212); Ex. 1003 ¶¶ 123–125).

In addition, Petitioner contends that Yung teaches or suggests a “single router” as the claim requires. Pet. 23–25. Petitioner submits that Yung discloses this requirement because it expressly states that the functionality of the described bandwidth management device can be integrated in a gateway, and a person of ordinary skill in the art would have known that a gateway is a router. *Id.* at 23 (citing 6:8–11, 7:12–18; Ex. 1003 ¶ 131; Ex. 1033, 2). Petitioner also submits that an ordinary artisan would have understood that a router is a “network device” that, by the time of Yung, could “classify network traffic.” *Id.* (citing Ex. 1005, 6:50–53; Ex. 1003 ¶ 128). Further, Petitioner asserts that Yung teaches that its functionality can be integrated in “bandwidth management devices” and routers provide bandwidth management. *Id.* at 23–24 (citing Ex. 1005, 3:27–28; Ex. 1003 ¶¶ 127, 132–138). Next, Petitioner contends that Yung also suggests applying its technique to routers, as a person of ordinary skill in the art “would have understood that routers were commonly operated to

detect/recognize flows, classify data flows using behavioral attributes, and measure/monitor aggregate and/or per-traffic variables and statistics.” *Id.* at 24 (citing Ex. 1003 ¶¶ 132–139; Ex. 1018, Abstract; Ex. 1020, 16:37–40; Ex. 1021, 3:19–24; Ex. 1023, 2:41–54; Ex. 1028, Abstract; Ex. 1030, 20:9–12). Petitioner also contends that this modification would not have required “any significant modification to network architectures” and “would have been predictable because prior-art routers already performed classification and bandwidth management.” *Id.* at 24–25 (citing Ex. 1003 ¶ 139).

Patent Owner contends that Petitioner fails to establish that Yung teaches or suggests the “single router” limitation. Prelim. Resp. 16–34. First, Patent Owner argues that Yung’s Figures 1 and 2 illustrate routers as being different components than Yung’s traffic monitoring device. *Id.* at 18–21 (citing Ex. 1005, Figs. 1–2, 6:53–59, 7:29–32). According to Patent Owner, Figure 1 shows that “Yung’s traffic monitoring device and traffic monitoring module *sit between* the first network device (i.e., a router, hub, or switch) and second network device (i.e., a router); Yung’s traffic monitoring functionality is therefore *not* performed by a router.” *Id.* at 20. Next, Patent Owner argues that Yung teaches away from use of a single router because Yung criticizes routers’ management of flows, Yung distinguishes a “bandwidth management device” from a router, and Yung teaches placing its techniques in a device that is discrete from a router. *Id.* at 21–23 (citing Ex. 1005, 3:27–28, 3:30–52, 4:2–5); *see also id.* at 23–24 (arguing that Petitioner’s Exhibit 1030 further supports this understanding). According to Patent Owner, “traffic classification is processor intensive” and an ordinary artisan would have expected that packet processing would be slowed down by placing this function on the router. *Id.* at 25–26 (citing Ex. 1032, 10).

Third, Patent Owner contends that the other references cited in Yung's specification do not disclose the single router limitation. *Id.* at 26–32 (citing Ex. 1005, 2:1–4, 2:17–19, 20:2–6; Ex. 1059, 3:53–63, Fig. 1; Ex. 1018, Abstract, 20:51–57, Figs. 2A–2D; Ex. 1036, 6:32–34, Fig. 1). Finally, Patent Owner argues that Petitioner fails to provide sufficient support for its rationale to modify Yung because it fails to explain what modifications would be required or why its modification would have been obvious to an ordinary artisan. *Id.* at 32–34 (citing Ex. 1003 ¶ 139).

Having considered the parties' arguments and cited evidence, we are persuaded that Petitioner has shown a reasonable likelihood that it will establish that Yung teaches or suggests this claim limitation.

First, we are persuaded that Yung's packet processor 131, which is part of bandwidth management device 130, creates a flow block (i.e., Yung's control block object) as the first packet of a flow is processed. Ex. 1005, 16:15–18, 23:23–30, Fig. 7 (steps 202, 204, 212); *see id.* at 8:2–12 (creating flow object in traffic monitoring device 30).

In addition, we are sufficiently persuaded that Yung teaches or suggests that its functionality can be integrated into a “single router,” as required by claim 1. Yung states:

The functionality of traffic monitoring device 30 can be integrated into a variety of network devices that classify network traffic, such as firewalls, *gateways*, . . . network traffic monitoring and/or bandwidth management devices, that are typically located at strategic points in computer networks.

Ex. 1005, 7:12–18 (emphasis added). On this record, we are persuaded that an ordinary artisan would have understood this to state that Yung's functionality can be integrated into a router because an ordinary artisan would have known that a gateway qualifies as a router. *See* Ex. 1003 ¶ 131

(testifying that an ordinary artisan “reading Yung’s description of ‘gateway’ as a network device capable of implementing its disclosures would have understood that this term covered a ‘router’”); Ex. 1033, 2 (“[A] gateway is an IP-level router.”). This finding is further supported by the evidence showing that, when Yung was filed, a router was a network device that could classify network traffic. *See* Ex. 1003 ¶ 128. At this stage, Patent Owner does not address this passage of Yung; however, if Patent Owner disagrees with our understanding of this passage (or factual findings regarding it), we encourage Patent Owner to explain its contrary understanding at trial.

We do not agree with several of Patent Owner’s arguments for this limitation. First, although Patent Owner correctly observes that Figures 1 and 2 of Yung show a router connected to Yung’s monitoring device, rather than a monitoring device in a router (*see* Prelim. Resp. 18–21), these disclosures do not detract from Yung’s statement that the monitoring device could be in a gateway (i.e., a type of router) (*see* Ex. 1005, 7:12–18). Further, although Patent Owner assumes that a router cannot be directly connected to another router, this assumption is not supported by sufficient explanation or evidence. *See* Prelim. Resp. 20.

Second, we do not agree that Yung teaches away from incorporating its functionality into a router. *See* Prelim. Resp. 21–26. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Yung recognizes that existing routers have limited abilities to manage bandwidth (as noted above), but Yung does not criticize, discredit, or

otherwise discourage inclusion of its functionality in a router. *See id.* at 554 (“A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use.”); *see also Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382–83 (Fed. Cir. 2017).

Finally, although two of Patent Owner’s remaining arguments are reasonable, neither casts doubt on Petitioner’s contention that Yung teaches or suggests this limitation. In particular, on this record, we agree with Patent Owner’s assertion (*see* Prelim. Resp. 22–23) that Yung appears to distinguish a “bandwidth management device” from a router. Ex. 1005, 4:2–5. Also, on this record, we are persuaded that sophisticated bandwidth management and traffic classification typically were handled by a device separate from and different than a router. *See* Prelim. Resp. 21–26.¹⁴ But, as discussed above, Yung expressly states that its functionality could be put in a gateway (Ex. 1005, 7:12–18), and as a result, we are persuaded that Yung teaches or suggests including its traffic classification and bandwidth management functionality in a router, as recited in the claim.

Accordingly, on this record, we are persuaded that Petitioner sufficiently shows that Yung teaches or suggests this limitation, despite Patent Owner’s arguments to the contrary.

¹⁴ It appears that although a router could provide “some level of bandwidth management” (Ex. 1005, 3:27–28; *see* Ex. 1003 ¶ 127; Ex. 1059, 4:13–15), a router’s ability to manage bandwidth or shape traffic was limited at the time (*see* Ex. 1005, 3:20–32, 4:2–5; Ex. 1032, 10; *cf.* Pet 24 (asserting that routers could recognize, classify, and monitor flows, without addressing a router’s ability to perform bandwidth management functions)).

- c. *“said flow block being configured to store payload-content-agnostic behavioral statistics pertaining to said flow, regardless of the presence or absence of congestion”*

Petitioner contends that Yung discloses this limitation and that it would have been obvious in light of Yung. Pet. 25–27. According to Petitioner, Yung’s control block object stores “various measurement values . . . that characterize the flow (e.g., last packet time, packet count, byte count, etc.),” and these values represent behavioral statistics about a flow’s conduct. *Id.* at 25–26 (quoting Ex. 1005, 25:8–11; citing *id.* at 8:5–11, 9:5–8, 11:36–38, 12:4–6, 17:42–49, 25:8–11). Petitioner asserts that this information is payload-content-agnostic because it is generated without reference to the contents of packets’ payloads. *Id.* at 26 (citing Ex. 1005, 5:53–6:11, 9:5–8, 10:53–65, 12:14–17, 14:60–15:22, 25:40–42; Ex. 1003 ¶¶ 143–146). According to Petitioner, Yung continuously tracks statistics, regardless of the presence of absence of congestion, and in any event, it would have been obvious to do so to allow for traffic classification in all situations. *Id.* at 27 (citing Ex. 1005, Abstract, 9:21–25, 25:11–15, Fig. 7; Ex. 1003 ¶¶ 147–148).

Patent Owner argues that Petitioner fails to demonstrate that Yung stores “behavioral statistics.” Prelim. Resp. 14–16. According to Patent Owner, Yung’s flow object—which Petitioner maps to the claimed flow block (*see* Pet. 21)—“does not store the behavioral statistics for an individual flow.” Prelim. Resp. 15. Patent Owner contends that Yung stores “various measurement values . . . on an aggregate and/or per-traffic-class basis,” and that Yung does not mention storing this information for individual flows. *Id.* (quoting Ex. 1005, 7:49–51).

On this record, we are sufficiently persuaded that Yung discloses this limitation, notwithstanding Patent Owner’s arguments to the contrary. In particular, we are persuaded that Yung’s control block object stores payload-content-agnostic behavioral statistics pertaining to the flow. In the embodiments Petitioner relies on, Yung’s “control block object correspond[s] to the data flow.” Ex. 1005, 23:23–30. The control block object also stores “various measurement values . . . that characterize the flow (e.g., last packet time, packet count, byte count, etc.).” Ex. 1005, 25:8–11. We understand this, in context, to mean that the control block object corresponds to a particular flow.

We do not agree with Patent Owner’s arguments to the contrary. First, Patent Owner’s argument is not commensurate with the limitations of claim 1. Patent Owner implies that Yung is deficient for failing to “store the behavioral statistics for an individual flow” *separate from* statistics for other flows (*see* Prelim. Resp. 15), but claim 1 simply recites “behavioral statistics pertaining to said flow” (Ex. 1001, 10:33–34). Second, Patent Owner relies on a different portion of Yung than Petitioner. *See* Prelim. Resp. 15; Pet. 25–27. In particular, Yung discloses storing measurement values for a particular flow (*see id.* at 23:23–30, 25:8–11) *as well as* storing those values on an aggregate basis (*see* Ex. 1005, 7:49–51), and Petitioner’s contentions rely exclusively on the former.

Accordingly, we are persuaded that Petitioner sufficiently shows that Yung discloses this limitation.

d. “said router updating said flow block with the payload-content-agnostic behavioral statistics of each packet belonging to said flow, as each packet

*belonging to said flow is processed by said router,
regardless of the presence or absence of congestion”*

Petitioner contends that Yung discloses this limitation. Pet. 28–30. In particular, Petitioner asserts that after a packet is passed to the flow control module, Yung’s packet processor 131 “updates various measurement values in the control block object that characterize the flow (e.g., last packet time, packet count, byte count, etc.).” *Id.* at 28–29 (quoting Ex. 1005, 25:8–11; citing *id.* at 25:11–15, Fig. 7 (steps 222, 224)). Petitioner further asserts that Yung updates statistics for “each packet,” whether or not there is congestion, because Yung provides aggregate statistics for the flow, such as total byte count and total packet count. *Id.* at 29–30 (citing Ex. 1003 ¶¶ 151–152; Ex. 1005, 25:11–15, Fig. 7; Pet. 25–27).

At this stage, other than its arguments regarding the requirements of a single router (*see supra* § III.E.1.b) and behavioral statistics (*see supra* § III.E.1.c), Patent Owner does not dispute Petitioner’s arguments, analysis, or evidence for this limitation. *See generally* Prelim. Resp.

Petitioner’s assertions and explanations are consistent with and supported by the evidence cited by Petitioner. On this record, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it will prevail in showing that Yung discloses this limitation.

- e. *“said router heuristically determining whether said flow exhibits undesirable behavior by comparing at least one of said payload-content-agnostic behavioral statistics to at least one pre-determined threshold value”*

Petitioner contends that Yung discloses this limitation. Pet. 30–33. Petitioner quotes from Yung’s statement that flow classification is “based on

a heuristic comparison of certain observed behavioral attributes of the data flows relative to a set of at least one known application behavior pattern.” *Id.* at 30 (emphasis omitted) (quoting Ex. 1005, 7:7–11; citing *id.* at Title, 9:39–44, 10:29–39). Petitioner contends that Yung’s comparison uses threshold values and criteria to classify flows. *Id.* at 31 (citing Ex. 1005, 9:54–57, 15:23–40). Petitioner further contends that Yung applies its traffic classification techniques to determine whether a flow exhibits undesirable behavior, noting that Yung seeks to control “unruly, bandwidth-intensive applications, such as peer-to-peer applications.” *Id.* at 30–31 (quoting Ex. 1005, 4:43–47; citing *id.* at 19:53–58, 20:20–24; Ex. 1003 ¶¶ 156–157). In support, Petitioner points to an example in Yung that evaluates the size of packets in a flow because particular applications (such as peer-to-peer file sharing applications) have particular behaviors (such as packet sizes within a particular range). *Id.* at 31–32 (citing Ex. 1005, 10:53–65, 11:60–62, 14:60–15:5, Fig. 5D).

At this stage, other than its arguments regarding the requirements of a single router (*see supra* § III.E.1.b) and behavioral statistics (*see supra* § III.E.1.c), Patent Owner does not dispute Petitioner’s arguments, analysis, or evidence for this limitation. *See generally* Prelim. Resp.

Petitioner’s assertions and explanations are consistent with and supported by the evidence cited by Petitioner. On this record, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it will prevail in showing that Yung discloses this limitation.

f. “upon determination by said router that said flow exhibits undesirable behavior, enforcing, relative to at least one packet, a penalty”

Petitioner contends that Yung discloses this limitation. Pet. 33–34 (citing Ex. 1003 ¶¶ 164–169). According to Petitioner, Yung teaches “per-flow bandwidth utilization controls,” as well as basing those controls on traffic classification, and Yung’s utilization controls include a “discard policy,” which drops packets. *Id.* at 33–34 (quoting Ex. 1005, 16:2–7, 19:52–61, 20:13–15; citing *id.* at 16:2–7). Petitioner contends Yung’s discard policy is a penalty enforced against at least one packet of a flow exhibiting undesirable behavior. *Id.* at 34 (citing Ex. 1003 ¶¶ 168–169).

Patent Owner argues that Petitioner fails to demonstrate that Yung teaches enforcing a penalty, as required by the claim. Prelim. Resp. 59–62. Patent Owner contends that “Yung’s alleged ‘penalty’ is different in kind, and much more penal, than the penalty disclosed in the ’593 patent, which is meant to rehabilitate a flow so that the flow will exhibit less undesirable behavior.” *Id.* at 60–61 (citing Ex. 1001, 5:38–42, 6:53–56, 9:67–10:3, 12:17–19; Ex. 1005, 20:13–15). Patent Owner also contends that “Yung does not teach enforcing a penalty on *misbehaving flows*,” but instead discards “packets or entire flows that exceed a rate associated with a particular traffic class.” *Id.* at 61–62 (citing Ex. 1005, 19:58–64, 20:13–15). Patent Owner further contends that Yung does not determine that a flow is misbehaving, but rather determines that it will not be given priority. *Id.* at 61 (citing Ex. 1005, 24:63–25:1).

On this record, we are sufficiently persuaded that Yung discloses this limitation. Yung teaches that flow control module 132 enforces per-flow bandwidth utilization controls, including a discard policy that drops packets.

Ex. 1005, 19:53–61, 20:13–15. Dr. Jeffay testifies that “a discard policy is a penalty enforced against a flow that exhibits undesirable behavior.”

Ex. 1003 ¶ 168 (emphases omitted). We credit this testimony, and on this record, we find this testimony to be well supported by Yung’s disclosure. Accordingly, we are persuaded that Yung teaches “upon determination by said router that said flow exhibits undesirable behavior, enforcing, relative to at least one packet, a penalty,” as recited by claim 1.

We do not agree with Patent Owner’s arguments to the contrary. First, claim 1 does not require the enforcement of any particular kind of penalty. As a result, even if we were to agree that Yung’s penalty is different than the penalty described in the ’593 patent (*see* Prelim. Resp. 60–61), this would not reveal a deficiency in Petitioner’s showing. Second, claim 1 does not require “enforcing a penalty on *misbehaving flows*” (Prelim. Resp. 61), but rather recites “enforcing, relative to at least one packet, a penalty” “upon determination . . . that the flow exhibits *undesirable behavior*” (Ex. 1001, 10:45–47). Thus, to the degree Patent Owner faults Yung for not determining that a flow is “misbehaving,” as opposed to simply behaving undesirably (*see* Prelim. Resp. 61–62), such an argument is not commensurate with the scope of the claim. Further, to the degree Patent Owner argues that Yung fails to teach “determining whether said flow exhibits undesirable behavior,” Patent Owner does not explain its argument.

Accordingly, we are persuaded that Petitioner sufficiently shows that Yung discloses this limitation, despite Patent Owner’s arguments to the contrary.

g. “*wherein the preceding steps are performed on said router without requiring use of inter-router data.*”

Petitioner contends that Yung discloses this limitation. Pet. 34–35. Petitioner asserts that a person of ordinary skill in the art would have understood Yung to teach or suggest performance of the steps on a single router, as discussed with respect to an earlier claim limitation. *Id.* at 34; *see also id.* at 23–25 (addressing single router requirement). Also, according to Petitioner, Yung’s behavioral statistics and traffic classification do not require any inter-router data. *Id.* at 34–35 (citing Ex. 1003 ¶ 171).

At this stage, other than its arguments regarding the single router limitation (*see supra* § III.E.1.b), Patent Owner does not dispute Petitioner’s arguments, analysis, or evidence for this limitation. *See generally* Prelim. Resp.

Petitioner’s assertions and explanations are consistent with and supported by the evidence cited by Petitioner. On this record, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it will prevail in showing that Yung discloses this limitation.

Thus, Petitioner has shown a reasonable likelihood that it would prevail in establishing the unpatentability of claim 1 as obvious over Yung.

2. *Independent Claims 2, 4, 5, and 25*

Independent claims 2, 4, 5, and 25 include limitations that are commensurate with limitations found in independent claim 1, and Petitioner largely relies on its prior analysis for these claims. *See* Pet. 36–40. Other than its arguments presented regarding claim 1 (*see supra* § III.E.1), Patent Owner does not dispute Petitioner’s arguments, analysis, or evidence for these claims. *See generally* Prelim. Resp.

For the reasons provided above, we are persuaded that Petitioner has shown a reasonable likelihood that it would prevail in establishing the unpatentability of claims 2, 4, 5, and 25 as obvious over Yung.

3. Dependent Claims 6, 7, 26, and 27

Claims 6 and 7 depend from independent claim 1, and claims 26 and 27 depend from independent claim 25. Ex. 1001, 11:51–60, 13:20–29.

We find that Petitioner has made an adequate showing that is not specifically challenged by Patent Owner in its Preliminary Response (*see generally* Prelim. Resp.), that Yung discloses the additional limitations of dependent claims 6 and 7 (which depend from independent claim 1) and dependent claims 26 and 27 (which depend from independent claim 25). *See* Pet. 41–42. Accordingly, we conclude that Petitioner also has demonstrated a reasonable likelihood of prevailing in its challenge to those claims as unpatentable over Yung.

4. Dependent Claims 17, 18, 37, and 38

Petitioner has not demonstrated a reasonable likelihood it would prevail in establishing the unpatentability of any of dependent claims 17, 18, 37, or 38 as obvious over Yung alone. *See* Pet. 1 (table of grounds), 42–43 (addressing these dependent claims). In particular, claims 17 and 18 both depend indirectly from independent claim 9 (Ex. 1001, 12:9–16, 12:29–30, 12:33), and claims 37 and 38 depend indirectly from independent claim 29 (*id.* at 13:45–52, 14:9–10, 14:14). Petitioner does not demonstrate that Yung teaches or suggests “computing . . . a badness factor for the flow,” as required by claim 9, or “means for computing . . . a badness factor for the flow,” as required by claim 29. *Cf.* Pet. 49–52 (relying on Copeland for

these limitations). Thus, Petitioner does not demonstrate that Yung teaches or suggests all limitations of dependent claims 17, 18, 37, and 38.

However, the inclusion of claims 17, 18, 37, and 38 in the Yung-only ground may be a typographical error. Indeed, Petitioner makes a sufficient showing that the limitations additionally recited by these claims are disclosed by Yung (*see* Pet. 42–43), and as explained below, Petitioner makes a sufficient showing that the remaining limitations would have been obvious over the combination of Yung and Copeland. *See, e.g.*, Pet. 54 (addressing dependent claims 12 and 32, from which these claims depend).

As a result, we question whether we should consider the Petition to include a contention that the subject matter of claims 17, 18, 37, and 38 would have been obvious over the combination of Yung and Copeland. We invite the parties to address this issue at trial.

F. Obviousness Ground Based on Yung and Copeland

Petitioner contends that the subject matter of claims 9–13, 19–24, 29–33, and 39–44 would have been obvious over the combination of Yung and Copeland. Pet. 43–61. Patent Owner disagrees, arguing that Petitioner fails to show a “badness factor,” as required by the independent claims (Prelim. Resp. 34–38) and fails to articulate a sufficient rationale to combine Yung and Copeland (*id.* at 39–43).

We have considered the parties’ arguments and the evidence presented at this stage. For the reasons explained below, we determine that Petitioner has demonstrated a reasonable likelihood that it will prevail in showing that the subject matter of claims 9–13, 19–24, 29–33, and 39–44 would have been obvious over Yung and Copeland.

1. Independent Claim 9

a. Petitioner's Contentions

Claim 9 begins: “A machine implemented method for processing a flow, the flow comprising a series of information packets, the method comprising” Ex. 1001, 11:63–65. Petitioner contends that Yung discloses the preamble of claim 9 for the reasons discussed above with respect to the preamble of claim 1. Pet. 48 (citing *id.* at 19–21).

Next, claim 9 recites “maintaining a set of behavioral statistics for the flow, wherein the set of behavioral statistics is updated based on each information packet belonging to the flow, as each information packet belonging to the flow is processed, regardless of the presence or absence of congestion.” Ex. 1001, 11:66–12:4. Petitioner contends that Yung discloses this limitation for the reasons discussed above with respect to the limitations of claim 1 directed to creating and updating a flow block that stores behavioral statistics pertaining to the flow. Pet. 48 (citing *id.* at 21–30). In particular, Petitioner contends that “Yung tracks ‘various measurement values in the control block object that characterize the flow (e.g., last packet time, packet count, byte count, etc.),” and these values teach the claimed “behavioral statistics.” *Id.* at 25 (quoting Ex. 1005, 25:8–11).

Claim 9 also recites “computing, based at least partially upon the set of behavioral statistics, a badness factor for the flow, wherein the badness factor provides an indication of whether the flow is exhibiting undesirable behavior.” Ex. 1001, 12:5–8. Petitioner contends that Copeland discloses this limitation. Pet. 49–51. Specifically, Petitioner points to Copeland’s “concern index” (CI)—a value assigned to a flow that appears to be suspicious—as the claimed “badness factor.” *Id.* at 49 (citing Ex. 1007,

3:31–35, 18:15–19, 26:22–27). Petitioner asserts that “Copeland’s CI value indicates whether the flow exhibits ‘suspicious activity,’” which is undesirable behavior. *Id.* at 49–50 (quoting Ex. 1007, 7:55–61; citing *id.* at 18:4–13; Ex. 1003 ¶ 212). Petitioner further asserts that Copeland computes the CI value based on statistics associated with a flow, noting that the CI value may be set to the number of packets, for example, as shown by the first row of Table I in Figure 6. *Id.* at 50 (citing Ex. 1007, 7:40–42, 10:45–47, Figs. 1, 6; Ex. 1003 ¶ 213).

Further, Petitioner contends that a person of ordinary skill in the art would have been motivated to incorporate Copeland’s flow-based CI value into Yung’s bandwidth management device. Pet. 45–48. Petitioner notes that Yung expressly contemplates incorporating “other factors” into its process, and Petitioner argues that an ordinary artisan “would have sought to classify traffic behaving suspiciously or disruptively.” *Id.* at 45 (citing Ex. 1005, 10:43–58, 11:59–60; Ex. 1003 ¶¶ 198–200). According to Petitioner, an ordinary artisan would have recognized that incorporating Copeland’s technique would enhance Yung’s ability to identify and control unauthorized traffic such as network attacks and probes, which were known concerns, while obviating the need for an administrator to understand the intricate nature of network attacks. *Id.* at 45–47 (citing Ex. 1005, 2:31–34, 4:43–47, 19:58–61; Ex. 1007, 8:33–44; Ex. 1003 ¶¶ 199–202); *see also id.* at 49 (asserting that “Copeland tracks behavioral statistics about network flows (e.g., start time, end time, number of bytes, and packet count)” (citing Ex. 1007, 16:45–60)). Petitioner also asserts that a person of ordinary skill in the art would have had a reasonable expectation of success in combining

the references. *Id.* at 47–48 (citing Ex. 1003 ¶¶ 203–204; Ex. 1005, 7:5–1, Figs. 2–3; Ex. 1007, Figs. 1–2).

b. Patent Owner’s Arguments

At this stage, Patent Owner disagrees with Petitioner on two main issues not previously addressed.¹⁵

First, Patent Owner argues that Copeland fails to disclose the “badness factor” required by the claims. Prelim. Resp. 34–38. Patent Owner submits that “Copeland’s concern index is for ‘suspicious activity’ [indicative of an intruder] in contrast to legitimate traffic.” *Id.* at 35–36 (citing Ex. 1007, Abstract, 1:45–48). Patent Owner argues that the claimed “badness factor,” on the other hand, “is concerned with ‘undesirable behavior’ or ‘misbehavior’ associated with P2P traffic, which is *not* necessarily suspicious or non-suspicious.” *Id.* at 36 (citing Ex. 1001, 1:10–18, 2:18–21). Patent Owner also asserts that “Copeland’s ‘concern index’ is concerned with suspicious behavior of a host, not undesirable behavior of a flow.” *Id.* In addition, Patent Owner contends that Copeland only assigns a concern index to suspicious flows, rather than “*each* flow” as allegedly required by the independent claims. *Id.* at 37–38.

Second, Patent Owner argues that the Petitioner’s rationale to combine the references is insufficient. Prelim. Resp. 39–43. Patent Owner contends that the Petition is premised on an erroneous assumption that Yung expressly motivates the combination by saying that it “can incorporate other

¹⁵ Patent Owner argues that Yung fails to disclose the “behavioral statistics” required by this claim (Prelim. Resp. 14), but we addressed that argument above. *See supra* § III.E.1.c (discussing similar requirement in claim 1).

factors.” *Id.* at 39–40 (quoting Ex. 1005, 11:59–60; citing Pet. 45–46; Ex. 1005, 10:43–58; Ex. 1003 ¶ 196; Ex. 1007, 3:45–54, Abstract). Patent Owner further contends that Copeland’s flow data structure fields are “obtained from packet headers, not flow-based behavioral statistics.” *Id.* at 40–41 (citing Ex. 1007, 16:45–60, 15:50–55). Finally, Patent Owner contends that Copeland teaches away from the combination and, relatedly, that Petitioner fails to address the differences between Yung and Copeland. *Id.* at 41–42 (citing Ex. 1007, 3:8–14, 3:38–39, 3:45–47, 4:26–29; Ex. 1005, 2:24–27, 5:59–64).

c. Analysis

On this record, we are persuaded that Petitioner’s assertions and explanations are consistent with and supported by the evidence Petitioner cites. In particular, for the reasons previously explained with respect to claim 1, we are persuaded that Yung discloses the language of the preamble of independent claim 9, as well as its limitation requiring a set of behavioral statistics to be maintained for a flow.

Further, for purposes of this Decision, we are persuaded that Copeland discloses calculating a badness factor, as required. In particular, Copeland analyzes a flow’s statistics “to determine if the flow appears to be legitimate traffic or possible suspicious activity” and calculates a concern index for the flow if it appears suspicious. Ex. 1007, 3:31–35; *see also id.* at 7:38–62 (explaining that flow’s statistics are stored in a flow database structure), 16:38–12 (describing the flow database structure). Dr. Jeffay testifies that an ordinary artisan would have understood the suspicious activity described by Copeland (e.g., probing and network attacks) to be undesirable behavior (Ex. 1003 ¶¶ 211–212), and we credit this testimony because it is logical and

consistent with the cited reference. Further, Copeland discloses that a concern index value may be calculated “for each flow,” and that this value may be the “number of packets” in the flow. Ex. 1007, 18:14–20, Fig. 6.

Patent Owner’s contrary arguments are misplaced. *See* Prelim. Resp. 34–38. Patent Owner argues that Copeland does not teach the “badness factor” because “undesirable” behavior or “misbehavior” is not necessarily “suspicious” (Prelim. Resp. 36), but this flips the analysis. The question is whether Copeland’s concern index discloses the claimed “badness factor”—in other words, whether the Copeland’s suspicious activity is “undesirable” behavior, not whether the claimed “undesirable” behavior is suspicious. On this record, we determine that Petitioner has sufficiently shown that Copeland’s concern index qualifies as a “badness factor” that “provides an indication of whether the flow is exhibiting undesirable behavior,” as required by claim 9. We observe that Patent Owner does not identify any construction of the claim terms that would exclude Copeland’s concern index.

Second, Patent Owner’s argues that Copeland is deficient because it only assigns the concern index to suspicious flows, not “*each* flow” (Prelim. Resp. 37–38), but this argument is not commensurate with the scope of the claim. In particular, claim 9 recites a method for processing *a flow* that includes computing a badness factor for *the flow*. Ex. 1001, 11:63–8. Patent Owner identifies (and we perceive) no limitation that requires a badness factor to be computed for *each flow*. In addition, “a prior art product that sometimes, but not always, embodies a claimed method nonetheless teaches that aspect of the invention.” *Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1326 (Fed. Cir. 2003).

Moreover, on this record, we are persuaded that Petitioner has made a sufficient showing that an ordinary artisan would have been motivated to combine Copeland's flow-based CI value into Yung's bandwidth management device. *See* Pet. 45–48.

Yung seeks to limit the bandwidth used by “bandwidth-intensive applications, such as peer-to-peer applications . . . and/or other unauthorized applications” (Ex. 1005, 4:43–47; *see also id.* at 2:31–34), and to that end, Yung describes particular techniques or factors for classifying a flow, while noting that other factors can also be used (*id.* at 10:43–58, 11:59–60). Copeland seeks to prevent a type of unauthorized use—specifically, intruders—and it analyzes flows to determine if they have the characteristics of probes or attacks. Ex. 1007, 4:30–33. Both Yung and Copeland analyze traffic flows and track flow statistics, such as the number of bytes and the packet count. *See* Ex. 1005, 25:8–11; Ex. 1007, 8:33–44, 16:45–60.

Dr. Jeffay testifies that “[n]etwork attacks and intrusions were a recognized problem during the relevant time frame,” and a person of ordinary skill in the art would have been concerned by these attacks, including the flooding attacks addressed by Copeland. Ex. 1003 ¶¶ 199–200; *see also* Ex. 1007, 1:64–65. He further testifies that an ordinary artisan would have recognized that incorporating Copeland's CI value would enhance Yung's device's ability to identify and control certain types of traffic (Ex. 1003 ¶ 198), he testifies that the ordinary artisan would have recognized the combination's benefits (*id.* ¶¶ 201–202), and he testifies that the ordinary artisan would have had a reasonable expectation of success (*id.* ¶ 203). In addition, Dr. Jeffay provides additional details regarding the specific alterations that would be required to combine the references and

explains that these changes would be within the level of skill of a person of ordinary skill in the art. *Id.* ¶¶ 203–204. On this record, we credit this testimony because it is logical and supported by cited evidence and because we perceive no evidence contradicting it. Accordingly, we determine that Petitioner has sufficiently shown that a person of ordinary skill in the art would have been motivated to combine Copeland’s flow-based CI value into Yung’s bandwidth management device. *See KSR*, 550 U.S. at 420 (noting that “any need or problem known in the field of endeavor at the time of invention . . . can provide a reason for combining the elements in the manner claimed”).

Thus, we disagree with Patent Owner’s assertion that Petitioner’s rationale is insufficient. *See Prelim. Resp.* 39–43. Although we agree that Yung’s reference to “other factors” does not itself provide an express motivation to combine the references, we disagree with Patent Owner’s assessment that Petitioner’s alleged motivation “stems (entirely) from [this] statement” in Yung. *Id.* at 39–40 (quoting Ex. 1005, 11:59–60). Moreover, on this record, we do not agree with Patent Owner’s assertion that “Copeland is directed to collecting self-reported flow information from packet headers” as opposed to behavioral statistics (*id.* at 40–41) because Copeland stores, for a flow, the number of bytes and the number of packets sent. *See Ex.* 1007, 3:18–35; Ex. 1001, 6:11–14 (stating that “total byte count” is a behavioral statistic). We invite Patent Owner to further explain this argument at trial.

Finally, on this record, we do not agree that Copeland teaches away from the proposed combination. *See Prelim. Resp.* 41–42. Copeland explains that “signature based methods” analyze a stream of transmitted

bytes for certain strings of characters, requiring “[s]ubstantial computing resources.” Ex. 1007, 2:13–23. This analysis of the contents of each packet is “impractical[],” so Copeland instead “inspects all inbound and outbound activity and identifies suspicious patterns” by: assigning packets to a flow, collecting statistics for each flow, and analyzing the statistics to determine if the flow is possible suspicious activity. *Id.* at 3:6–35; *see id.* at 4:26–29. Similarly, Yung classifies data flows based on their behavior rather than the contents of the packets. *See* Ex. 1005, 5:53–6:5. Patent Owner does not sufficiently explain why the differences it identifies are relevant to Petitioner’s proposed combination. *See* Prelim. Resp. 42.

In sum, we determine that Petitioner has shown a reasonable likelihood that it would prevail in establishing the unpatentability of claim 9 as obvious over Yung and Copeland, notwithstanding Patent Owner’s arguments to the contrary.

2. *Independent Claim 29*
Dependent Claims 10–13, 19–24, 30–33, and 39–44

Independent claim 29 includes limitations commensurate with limitations found in independent claim 9, and Petitioner largely relies on its prior analysis for this claim. *See* Pet. 51–52. Other than its arguments presented regarding claim 9 (*see supra* § III.F.1), Patent Owner does not dispute Petitioner’s arguments, analysis, or evidence for this claim. *See generally* Prelim. Resp. We are persuaded, for the reasons provided above, that Petitioner has shown a reasonable likelihood that it would prevail in establishing the unpatentability of claim 29 as obvious over Yung and Copeland.

Moreover, we find that Petitioner has made an adequate showing, unchallenged by Patent Owner in its Preliminary Response (*see generally* Prelim. Resp.), that the Yung-Copeland combination teaches or suggests the additional limitations of dependent claims 10–13 and 19–24 (which depend from independent claim 9) and dependent claims 30–33 and 39–44 (which depend from independent claim 29). *See* Pet. 53–61. Accordingly, we conclude that Petitioner also has demonstrated a reasonable likelihood of prevailing in its challenge to these claims as unpatentable over Yung and Copeland.

G. Obviousness Ground Based on Yung and Four-Steps Whitepaper

Petitioner contends that the subject matter of independent claim 3 would have been obvious over Yung and the Four-Steps Whitepaper. Pet. 61–68. Patent Owner responds that Petitioner fails to show that the Four-Steps Whitepaper qualifies as prior art (Prelim. Resp. 43–53), fails to provide a reason to combine the references (*id.* at 56–59), and fails to show that the combination teaches or suggests the “second field” required by claim 3 (*id.* at 53–55).

We have determined above that there is a reasonable likelihood that the Petitioner will prevail with respect to most of the claims challenged in the Petition (*see supra* §§ III.E, III.F), and so we institute *inter partes* review as to all claims and all grounds.¹⁶ Accordingly, we will fully evaluate Petitioner’s contention that claim 3 is unpatentable at trial, with the benefit

¹⁶ *See USPTO Guidance on the Impact of SAS on AIA Trial Proceedings* (April 26, 2018) (“[T]he PTAB will institute as to all claims or none . . . if the PTAB institutes a trial, the PTAB will institute on all challenges raised in the petition.”).

of additional briefing from the parties. In this Decision, we provide our initial assessment of the disputed issues to provide guidance to the parties.

1. Public Accessibility of the Four-Steps Whitepaper

Petitioner contends that the Four-Steps Whitepaper was on Packeteer’s website before the filing of the ’593 patent, and in support, Petitioner introduces a declaration by Professor Elizabeth Rosenberg testifying that the document was archived on March 17, 2003 by the Wayback Machine. Pet. 15–16 (citing Ex. 1006, i–ii). Patent Owner does not allege any deficiency in this aspect of Petitioner’s showing, and we are persuaded that Petitioner has sufficiently shown that the Four-Steps Whitepaper (Exhibit 1006) was on Packeteer’s website on March 17, 2003, which is more than one year before the filing of the ’593 patent.

But, in addition to proving a date, Petitioner must also show that the Four-Steps Whitepaper was “publicly accessible” in order to show that it qualifies as prior art. *See In re Lister*, 583 F.3d 1307, 1311 (Fed. Cir. 2009). “A reference is considered publicly accessible if ‘persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.’” *Samsung Elecs. Co. v. Infobridge Pte. Ltd.*, 929 F.3d 1363, 1369 (Fed. Cir. 2019) (quoting *Acceleration Bay, LLC v. Activision Blizzard Inc.*, 908 F.3d 765, 772 (Fed. Cir. 2018)).

At this stage, we question whether Petitioner has sufficiently shown that the Four-Steps Whitepaper was publicly available. On this point, the Petition states:

The Four-Steps Whitepaper is stamped with a URL reflecting that the publication was archived from the Packeteer website on March 17, 2003. This website offered technical manuals and documentation for Packeteer’s traffic-management

products, including PacketShaper®. Packeteer was a publicly traded company and a known leader in this industry.

Pet. 16 (citing Ex. 1006, iv; Ex. 1031, 1; Ex. 1032, 6–7).

Patent Owner argues that this fails to show public accessibility. *See* Prelim. Resp. 49–53. Specifically, Patent Owner contends that Petitioner’s cited evidence is hearsay¹⁷ and, even if true, it does not show that a person of ordinary skill in the art would have been aware of the Packeteer website generally, or the Four-Steps Whitepaper specifically. *Id.* at 51–52. Further, as to Petitioner’s evidence, Patent Owner submits that Exhibit 1031 was published in 2006, after the ’593 patent was filed. *Id.* at 53. And, Patent Owner contends that Exhibit 1032 references a different paper than the one included in Exhibit 1006 because the two papers do not include the same quotes. *Id.* at 52–53 (*comparing* Ex. 1032, 8 (quoting “Four Steps Packeteer, p. 5”), *with* Ex. 1006, 5 (not including quote)).

Patent Owner’s arguments are reasonable. In particular, we question whether Petitioner introduced sufficient evidence to show that an ordinary artisan would have been able to locate the Four-Steps Whitepaper with reasonable diligence.

Petitioner appears to contend that an ordinary artisan could reasonably have located the Four-Steps Whitepaper because “Packeteer was a publicly traded company and a known leader in this industry,” as shown by Exhibits 1031 and 1032 (Pet. 16); however, we cannot say that Petitioner’s contention is sufficiently supported by these exhibits. Exhibit 1031 states

¹⁷ We defer resolution of this evidentiary objection to trial, and for purposes of this Decision, we assume that the evidence is admissible. To preserve this argument, Patent Owner must timely object and file a motion to exclude.

that “[s]eventy-four percent of the world’s largest companies rely on Packeteer® innovation,” indicating that Packeteer was known as a leader in the industry (Ex. 1031, 1; *see also id.* at 7), but this exhibit includes a 2006 copyright date (*id.* at 7), which causes us to question whether Packeteer was known to an ordinary artisan in the relevant timeframe. Exhibit 1032 identifies PacketShaper as a Packeteer product and states that “a simple introductory paper” was available on the company’s website. Ex. 1032, 6–7. But, as Patent Owner observes, the referenced paper appears to be a different document. *See* Prelim. Resp. 52–53. Specifically, the URL for the introductory paper and the Four-Steps Whitepaper are different (*compare* Ex. 1032, 7, *with* Ex. 1006, iv), and at least one quote is different (*compare* Ex. 1032, 8 (quoting Four Steps Packeteer, 5), *with* Ex. 1006, 5 (not including quote), 19 (including quote)).

Moreover, even if we assume that an ordinary artisan was aware of the company (Packeteer) and its website, we query whether the Petition sufficiently shows that an ordinary artisan would have been able to locate the Four-Steps Whitepaper on that website with reasonable diligence. For example, Petitioner does not contend that Packeteer’s website included an index or search function that would have allowed an ordinary artisan to find this particular Whitepaper.¹⁸ Moreover, although the Four-Steps Whitepaper is a “Technical Product Overview,” suggesting that it was distributed to

¹⁸ These are relevant inquiries, not strict requirements. *See Voter Verified, Inc. v. Premier Election Sols., Inc.*, 698 F.3d 1374, 1380 (Fed. Cir. 2012) (affirming finding that an article was publicly accessible, despite lack of indexing, where the evidence demonstrated that the website including the article was well known to the relevant community, included a search tool, and included submissions that could be freely and easily copied).

promote adoption of the product (Ex. 1006, 1, 3), the first page of this document states that it may not be copied or downloaded without Packeteer’s “express written consent,” casting doubt on whether Packeteer made this document available to the public (*id.* at 1). *Cf. Valve Corp. v. Ironburg Inventions Ltd.*, 8 F.4th 1364, 1374 (Fed. Cir. 2021) (explaining that an article was “intended to reach the general public, so that [it] could promote [a particular] business,” which was “strong evidence” that the article was publicly accessible (quotations omitted)).

We will determine at trial, with the benefit of the full record, whether Petitioner has shown by a preponderance of the evidence that the Four-Steps Whitepaper qualifies as a printed publication.

2. Motivation to Combine Yung and Four-Steps Whitepaper

Patent Owner contends that Petitioner fails to provide a sufficient motivation to combine Yung and the Four-Steps Whitepaper. Prelim. Resp. 56–59. We disagree.

Petitioner contends that a person of ordinary skill in the art would have been motivated to combine these references. Pet. 62–63. In particular, Petitioner argues that Yung suggests the combination because it specifically references the PacketShaper product as an exemplary bandwidth management device, and the Four-Steps Whitepaper provides an overview of this product. *Id.* at 62 (citing Ex. 1005, 4:47–51). Moreover, Petitioner submits that “Yung is a Packeteer patent,” and PacketShaper is a Packeteer product. *Id.* Petitioner also alleges that an ordinary artisan would have been motivated to incorporate the data collected in the Four-Steps Whitepaper into Yung’s device to more accurately classify traffic and to provide information regarding the device’s effectiveness. *Id.* at 62–63 (citing

Ex. 1003 ¶ 246; Ex. 1006, 21, 23). In addition, Petitioner contends that the combination “would be well within the skill of a [person of ordinary skill in the art].” *Id.* at 63 (citing Ex. 1003 ¶ 249).

Patent Owner argues that “the fact that Yung and the Four-Steps Whitepaper both describe bandwidth-management devices does not establish a motivation to combine.” Prelim. Resp. 56–57. Next, Patent Owner acknowledges Yung’s reference to PacketShaper, but contends that this does not provide the requisite motivation to combine. *Id.* at 57–59. According to Patent Owner, Yung merely states that PacketShaper “may be useful for identifying traffic in certain circumstances” (*id.* at 57), and Petitioner’s rationale is “illogical” because Yung’s applicants were aware of PacketShaper but did not combine it or the Four-Steps Whitepaper with Yung (*id.* at 58–59).

On this record, we are persuaded that a person of ordinary skill in the art would have been motivated to combine Yung and the Four-Steps Whitepaper. The rationale Petitioner articulates is logical and supported by the cited evidence. In particular, Yung is a Packeteer patent, it describes an improved bandwidth management device, and it identifies a Packeteer product (i.e., PacketShaper) as an exemplary bandwidth management device. *See* Ex. 1005, code (73), 4:47–51. The Four-Steps Whitepaper provides additional information regarding PacketShaper’s functionality. *See generally* Ex. 1006. We are persuaded that this sufficiently shows that a person of ordinary skill in the art would have been motivated to combine these references.

Patent Owner’s arguments do not reveal a deficiency in Petitioner’s showing. First, we do not agree with Patent Owner’s suggestion that

Petitioner merely relies on the fact that both references include bandwidth management devices. *See* Prelim. Resp. 56. Second, we disagree that it is somehow “illogical” to combine these references simply because Yung did not do so (*see id.* at 58–59), and we fail to perceive the logic in Patent Owner’s contrary argument.

3. *Sufficiency of Petitioner’s Showing for the “Second Field”*

Claim 3 recites “a second field containing data representing payload-content-agnostic behavioral statistics about dropped and non-dropped packets of a flow.” Ex. 1001, 11:10–12.

For this limitation, Petitioner relies on its prior contention that Yung discloses payload-content-agnostic behavioral statistics and points to the Four-Steps Whitepaper to disclose “statistics about dropped and non-dropped packets of a flow” “[t]o any extent” this aspect of the limitation is not taught by Yung. Pet. 66 (citing *id.* at 25–27; Ex. 1005, 18:2–6). Specifically, Petitioner asserts that the Four-Steps Whitepaper teaches tracking “[c]ounts and percentages of retransmitted, received, tossed, dropped, and good TCP packets.” *Id.* (quoting Ex. 1006, 18).

According to Patent Owner, “as shown in Figure 3 of Yung, if packets of Yung’s flow are dropped as a consequence of Yung’s discard policy of flow control module 132, information about the dropped packets is not stored in Yung’s flow database 135.” Prelim. Resp. 55. In addition, Patent Owner argues that the Four-Steps Whitepaper fails to teach this limitation because “counting percentages of packets, even dropped packets, is different from storing payload-content-agnostic behavioral statistics about the packets.” *Id.*

We disagree with Patent Owner’s arguments. First, we understand Yung to disclose that control block objects in flow database 135 are updated as each packet in a flow is processed in order to maintain accurate information, as Petitioner contends. *See* Pet. 27–30; *see also* Ex. 1005, 17:42–49, 24:63–15, 25:11–15; Ex. 1003 ¶¶ 147–148. Patent Owner does not sufficiently explain its contrary understanding.

Further, Patent Owner’s argument regarding the Four-Steps Whitepaper is inapposite because it does not respond to the contentions advanced by the Petition. Namely, Petitioner relies on Yung, not the Four-Steps Whitepaper, to disclose payload-content-agnostic behavioral statistics (*see* Pet. 66–67), and as explained above, we are persuaded that Yung discloses these claimed aspects (*see supra* § III.E.1.c). Further, we perceive no deficiencies in Petitioner’s contention that the Four-Steps Whitepaper discloses maintaining data about dropped and non-dropped packets of a flow (*see* Ex. 1006, 18), or in Petitioner’s rationale to incorporate this data into Yung (*see* Pet. 62–63, 66–67).

H. Obviousness Ground Based on Yung, Copeland, and Ye

Petitioner contends that the subject matter of dependent claims 8, 14–16, 28, and 34–36 would have been obvious over Yung, Copeland, and Ye. Pet. 69–75.

Patent Owner contends that the Petition is deficient because it fails to show enforcing a penalty when a “congestion condition” is encountered, as these claims require. Prelim. Resp. 63–64. To that end, Patent Owner argues that Ye’s “saturation condition” does not qualify as a “congestion condition,” as required by the claims—according to Patent Owner, the claimed “congestion condition” refers to congestion on the “outgoing link

onto which the router sends packets,” where “Ye’s ‘saturation condition’ is when the router itself is overrun” by received packets. *Id.* (citing Ex. 1001, 8:57–59; Ex. 1008, 5:57–60).

We do not agree with Patent Owner’s argument.¹⁹ Ye determines whether a router is experiencing congestion, and Ye’s example is a saturation condition that persists for a pre-selected period of time. Ex. 1008, 9:17–27. We are persuaded that this teaches a “congestion condition.”

Although Patent Owner contends that the term “congestion condition” refers specifically to congestion on the outgoing link, Patent Owner identifies (and we perceive) no support for such a construction of the claim. *See* Prelim. Resp. 63–64. In its Preliminary Response, Patent Owner points to one sentence in the Specification identifying congestion on the outgoing link as an *example* of a “congestion condition.” Ex. 1001, 8:57–59; *cf.* *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1373–74 (Fed. Cir. 2014) (holding phrase indefinite because additional detail provided in “e.g.” phrase provided an example rather than a definition). But this lone example is insufficient to support the narrow interpretation advocated by Patent Owner. *See Phillips*, 415 F.3d at 1323 (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”); *e.g.*, *Innova/Pure Water, Inc. v. Safar Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004) (“[E]ven where a patent describes only a single

¹⁹ As noted above, we have decided to institute *inter partes* review as to all claims and all grounds, but we address Patent Owner’s arguments to provide guidance to the parties. We will evaluate, at trial, whether Petitioner has shown unpatentability of these claims by a preponderance of the evidence.

embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope.” (internal quotation omitted)).

IV. CONCLUSION

As explained above, we determine that Petitioner has established a reasonable likelihood of prevailing in its challenge to at least one claim of the ’593 patent, and we are not persuaded to exercise our discretion to deny institution. Accordingly, we institute an *inter partes* review of all challenged claims on all asserted grounds.

V. ORDER

It is:

ORDERED that an *inter partes* review is instituted on all of the challenged claims, i.e., claims 1–44 of the ’593 patent, on all corresponding grounds of unpatentability as specified in the Petition and identified in the Table in Section I.B. of this Decision; 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 ’593 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of a trial.

IPR2021-00909
Patent 8,243,593 B2

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