

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CLOUDFLARE, INC.,
Petitioner,

v.

SABLE NETWORKS, INC.,
Patent Owner.

IPR2021-01005
Patent 7,012,919 B1

Before KRISTEN L. DROESCH, STACEY G. WHITE, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

DIRBA, *Administrative Patent Judge*.

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

On May 28, 2021, Cloudflare, Inc. (“Petitioner”) and SonicWall Inc.¹ filed a Petition requesting *inter partes* review of claims 1–29 of U.S. Patent No. 7,012,919 B1 (Ex. 1001, “the ’919 patent”). Paper 1 (“Pet.”). Sable Networks, Inc.² (“Patent Owner”) filed a statutory disclaimer of claims 1–24, 28, and 29 and then filed a Preliminary Response. Paper 8 (“Prelim. Resp.”); Ex. 2006. With authorization, Petitioner filed a pre-institution reply (Paper 10), and Patent Owner filed a pre-institution sur-reply (Paper 14).

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 determine that Petitioner has not shown a reasonable likelihood that it will prevail in establishing the unpatentability of any of claims 25–27, and Patent Owner disclaimed all other challenged claims. Accordingly, we do not institute an *inter partes* review.

I. BACKGROUND

A. Related Matters

The parties identify *Sable Networks, Inc. v. Cloudflare, Inc.*, 6:21-cv-00261 (W.D. Tex.) as a related proceeding. Pet. xi; Paper 7, 1–2. Patent Owner also identifies other district court proceedings. Paper 7, 1–2.

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 7, 1.

In addition, Patent Owner identifies two Board proceedings that involved the '919 patent: IPR2020-01721 and IPR2021-00051. Paper 7, 2. Both of these proceedings were terminated due to settlement before Patent Owner's preliminary responses were due. *Cisco Sys., Inc. v. Sable Networks, Inc.*, IPR2020-01721, Paper 10 (PTAB Feb. 11, 2021) (Termination Order); *Palo Alto Networks, Inc. v. Sable Networks, Inc.*, IPR2021-00051, Paper 9 (PTAB Feb. 11, 2021) (Termination Order).

B. Statutory Disclaimer

Patent Owner "filed a statutory disclaimer under 35 U.S.C. § 253(a) of claims 1–24 and 28–29 of the '919 patent." Prelim. Resp. 31; Ex. 2006. According to Patent Owner, these claims "should be treated as though they never existed," and "no review may be instituted based on any of claims 1–24 and 28–29." Prelim. Resp. 31–32; *see also id.* at 1 n.1.

"[A] patent owner may file a statutory disclaimer under 35 U.S.C. 253(a) in compliance with § 1.321(a) of this chapter, disclaiming one or more claims in the patent. No *inter partes* review will be instituted based on disclaimed claims." 37 C.F.R. § 42.107(e) (2020). A statutory disclaimer is "considered as part of the original patent" as of the date on which it is "recorded" in the Office. 35 U.S.C. § 253(a). For a disclaimer to be "recorded" in the Office, the document filed by the patent owner must:

- (1) Be signed by the patentee, or an attorney or agent of record;
- (2) Identify the patent and complete claim or claims, or term being disclaimed. A disclaimer which is not a disclaimer of a complete claim or claims, or term will be refused recordation;
- (3) State the present extent of patentee's ownership interest in the patent; and
- (4) Be accompanied by the fee set forth in [37 C.F.R.] § 1.20(d).

37 C.F.R. § 1.321(a); *see also Vectra Fitness, Inc. v. TNWK Corp.*, 162 F.3d 1379, 1382 (Fed. Cir. 1998) (holding that a § 253 disclaimer is immediately “recorded” on the date that the Office receives a disclaimer meeting the requirements of 37 C.F.R. § 1.321(a), and that no further action is required in the Office).

Based on our review of Exhibit 2006 and the Office’s public records, we conclude that claims 1–24, 28, and 29 have been disclaimed under 35 U.S.C. § 253(a) in compliance with 37 C.F.R. § 1.321(a), and thus, no *inter partes* review shall be instituted as to those claims. *See* 37 C.F.R. § 42.107(e) (“No *inter partes* review will be instituted based on disclaimed claims.”). Consequently, we consider only claims 25–27.

C. The Petition’s Asserted Grounds

For claims 25–27, Petitioner asserts the following grounds of unpatentability (Pet. 1):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
25–27	103(a) ³	Kodialam, ⁴ Cheesman ⁵
25–27	103(a)	Andrikopoulos, ⁶ Cheesman

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 6,584,071 B1, filed Aug. 3, 1999, issued June 24, 2003 (Ex. 1005).

⁵ US 6,680,933 B1, filed Sept. 23, 1999, issued Jan. 20, 2004 (Ex. 1006).

⁶ Ilias Andrikopoulos and George Pavlou, “Supporting Differentiated Services in MPLS Networks,” *IWQoS ’99: 1999 Seventh International Workshop on Quality of Service*, 207–215 (Ex. 1007).

Petitioner also relies on the testimony of Dr. Kevin Jeffay. Ex. 1003.

D. Summary of the '919 Patent

The '919 patent is titled “Micro-Flow Label Switching.” Ex. 1001, code (54). It issued from an application filed on December 8, 2000, and it purports to be a continuation-in-part of an application filed on April 19, 2000, which issued as U.S. Patent No. 6,574,195. *Id.* at codes (22), (63).

The Specification describes techniques for routing data packets through a computer network using label switched paths (LSPs). Ex. 1001, Abstract. Figure 3, shown below, illustrates an exemplary network.

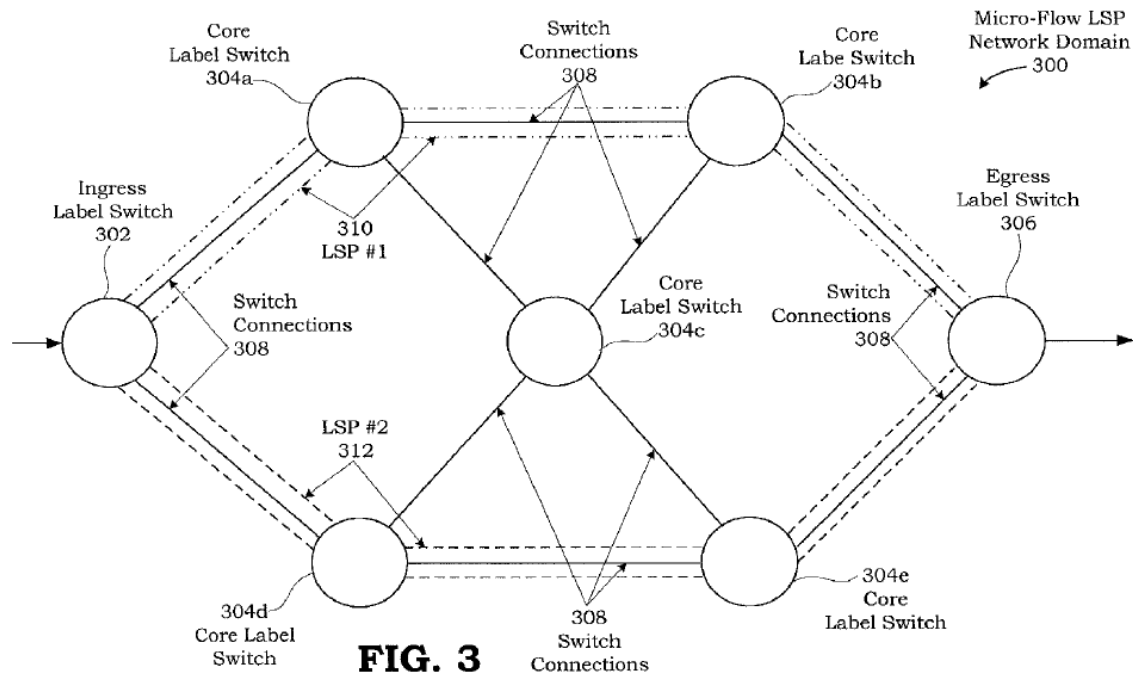


FIG. 3

As shown above, “micro-flow LSP network domain 300 includes an ingress label switch 302, core label switches 304a-e, an egress label switch 306, physical switch connections 308 (links), LSP #1 310, and LSP#2 312.” *Id.* at 9:37–43. “In use, flow data arriving at the ingress label switch 302 . . . is converted to a micro-flow[and] assigned a [Quality of Service (QoS)] type.” *Id.* at 9:52–57. Next, an LSP is selected for the micro-flow “based on the

QoS service type of the micro-flow and the link utilization of the LSPs.” *Id.* at 9:58–61. Ingress label switch 302 then transmits the micro-flow to egress label switch 306 along the selected LSP—for example, if LSP #1 310 is selected, the packets travel to egress label switch 306 via core label switches 304a and 304b, and if LSP #2 312 is selected, the packets instead travel via core label switches 304d and 304e. *Id.* at 9:61–63, Fig. 3.

Figure 4B, reproduced below, is a block diagram of ingress label switch 302. Ex. 1001, 11:63–65.

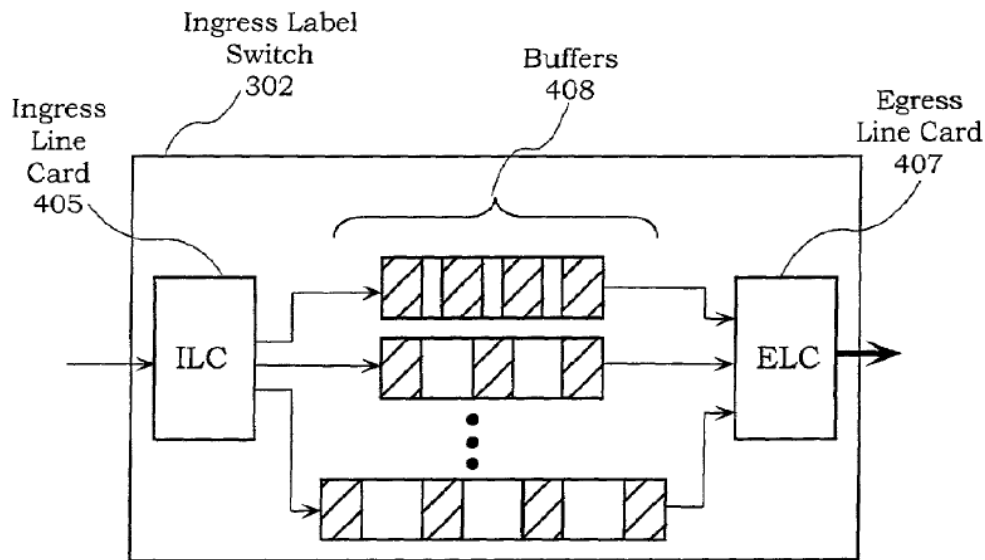


FIG. 4B

As shown above, ingress label switch 302 includes ingress line card 405, egress line card 407, and a plurality of buffers 408. *Id.* at 11:65–67. Ingress line card 405 places “micro-flows . . . into particular buffers 408 based on the assigned rate, which is based one [sic] QoS and a weighting factor.” *Id.* at 11:67–12:2, 12:7–8. “[B]uffers 408 are configured to stack up traffic” and are “controlled by a scheduler” to manage micro-flow transmission. *Id.* at 12:11–13. The egress line card “is responsible for ensuring that the

micro-flow data packets are transmitted over the trunk line coupled to the egress line card” and “ensures that the micro-flow data packets are transmitted within the QoS constraints.” *Id.* at 15:7–15.

E. Challenged Claims

Petitioner challenges claims 25–27.⁷ Of these, claim 25 is independent, and claims 26 and 27 depend from claim 25. Independent claim 25 recites:

25. A method for transmitting a data flow over a network connection, comprising the operations of:

receiving a first aggregate flow comprising a plurality of individual data flows at an ingress line card, each individual data flow comprising a plurality of data packets;

separating the first aggregate flow into a plurality of individual micro-flows at the ingress line card, each individual micro-flow comprising a data flow;

routing the micro-flows to an egress line card, the egress line card being selected based on a quality of service of each individual micro-flow;

assembling the plurality of individual micro-flows into a second aggregate flow having a quality of service capable of supporting the quality of service of the plurality of micro-flows, the assembling being performed at the egress line card; and

transmitting the second aggregate flow over the network connection.

Ex. 1001, 22:62–23:13.

⁷ Although the Petition challenges all 29 claims of the ’919 patent (Pet. 1), we do not consider Petitioner’s challenge to the other claims because those claims were disclaimed by Patent Owner. *See supra* § I.B; Ex. 2006.

II. 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 2–3 years of academic or industry experience in computer networking.” Pet. 5 (citing Ex. 1003 ¶ 23).

At this stage, Patent Owner does not address the level of ordinary skill in the art. *See* 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 ’919 patent and the asserted prior art. For purposes of this Decision, we adopt Petitioner’s proposed level of skill, as articulated above.

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). 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 asserts that no express constructions are necessary for this proceeding. Pet. 5–6. Patent Owner proposes constructions for the claim term “individual micro-flow” (Prelim. Resp. 12–15) and the phrase “having a quality of service capable of supporting the quality of service of the plurality of micro-flows” (*id.* at 23–25).

Based on the record before us, we do not find it necessary to expressly construe any claim terms or phrases in this Decision. *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))).

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.⁸ *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. Kodialam (Ex. 1005)

Kodialam describes techniques for routing a flow of packets through a network of interconnected nodes (e.g., routers) along an LSP. Ex. 1005, Abstract, 1:14–17.

⁸ The current record does not include allegations or evidence of objective indicia of nonobviousness.

In Figure 6, reproduced below, Kodialam shows a block diagram of a router. Ex. 1005, 4:40–42, 12:15–16.

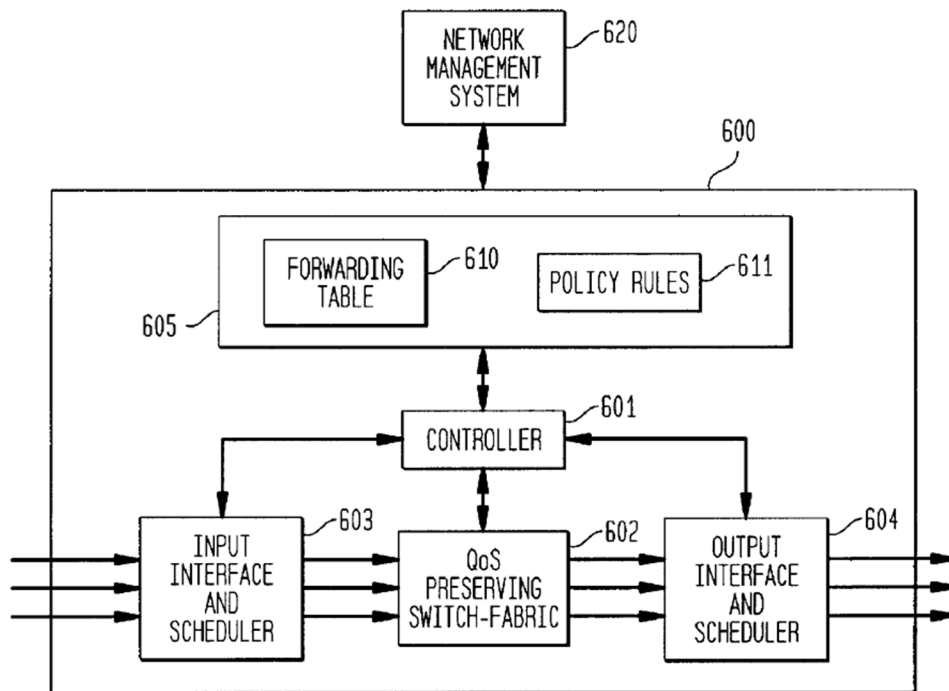


FIG. 6

As shown above, “[r]outer 600 includes a controller 601, QoS preserving switch-fabric 602, input interface and scheduler 603, output interface and scheduler 604, and memory 605.” *Id.* at 12:15–19. Packet flows are routed through router 600 by traveling from input interface and scheduler 603 to output interface and scheduler 604 via QoS preserving switch-fabric 602. *Id.* at 12:27–32.

2. Cheesman (Ex. 1006)

Cheesman describes a telecommunications switch. Ex. 1006, Abstract, 1:6–10. In Figure 1, reproduced below, Cheesman shows a block diagram of a generic switch or router. *Id.* at 5:24–26.

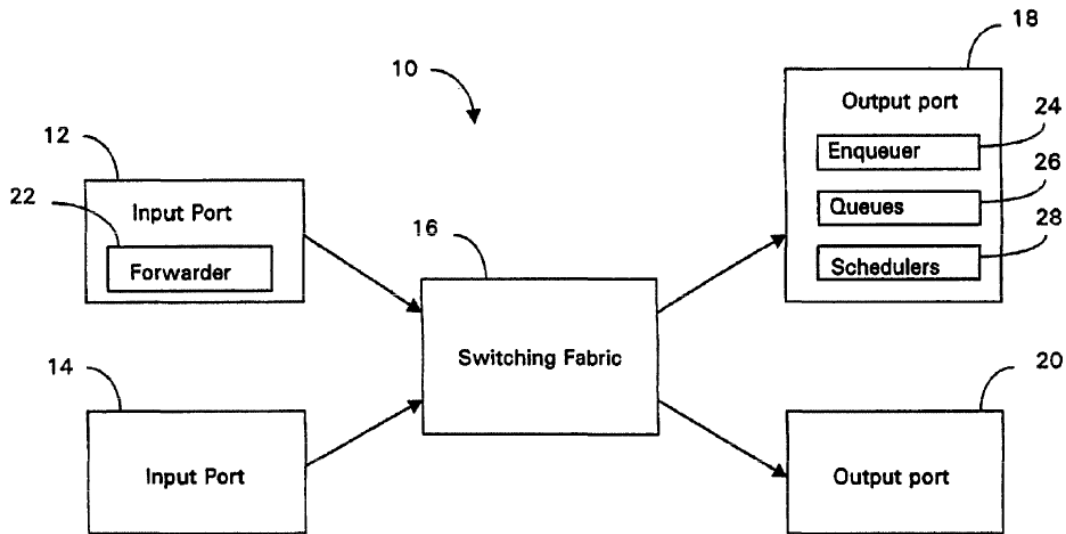


FIG. 1 Prior Art

As shown in Figure 1, “switch 10 includes input ports 12, 14 which are connected [to] a switching fabric 16,” and switching fabric 16 is further “connected to output ports 18, 20.” *Id.* at 5:26–29. Protocol data units (PDUs)—i.e., Asynchronous Transfer Mode (ATM) cells and Internet Protocol (IP) packets—arrive at input ports 12, 14 and are directed to output ports 18, 20 via switching fabric 16. *Id.* at 5:35–40.

In Figures 2 and 3, Cheesman provides block diagrams of typical output ports 18 that are “known in the art.” Ex. 1006, 5:49–51, 6:62–63. Figure 2 shows output port 18’ and is reproduced below.

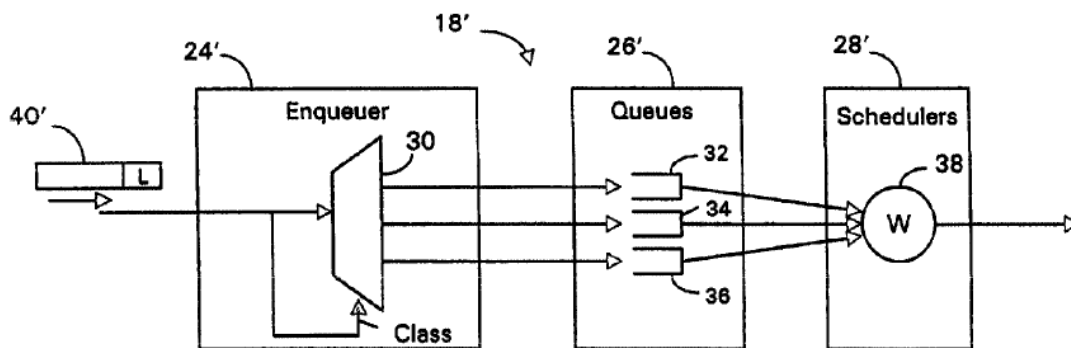


FIG. 2 Prior Art

As shown above, output port 18’ includes enqueue 24’, set of queues 28’ (with queues 32, 34, and 36), and scheduler 28’. In operation, output port

18' receives PDU 40, which has a header with a label (L) "that specifies a class to which the PDU belongs." *Id.* at 5:59–63. Selection block 30 in enqueueer 24' "determines into which of the queues 32, 34, 36 the PDU should be sent based on the class of the PDU." *Id.* at 5:63–66. For example, there may be "three classes of [network] service, labelled gold, silver and bronze," which have decreasing amounts of bandwidth. *Id.* at 6:23–28. PDUs are queued with other PDUs of the same class. *Id.* at 6:30–32; *see also id.* at 6:2 ("Typically, there is one queue per class."). Meanwhile, scheduler 38 selects PDUs for transmission from queues 32, 34, 36 based on the weights assigned to each respective queue, and in this way, each class is allocated a relative proportion of the outgoing bandwidth. *Id.* at 6:2–15. However, "packets of the same service type arriving from different sources will be in competition for their share of that apportionment." *Id.* at 6:16–18. "Thus, a service subscriber is not guaranteed any particular share of that apportionment," and "delivery of PDUs is on a best-effort basis for all classes of service." *Id.* at 6:13–14, 6:18–19.

Figure 3 shows output port 18" and is reproduced below.

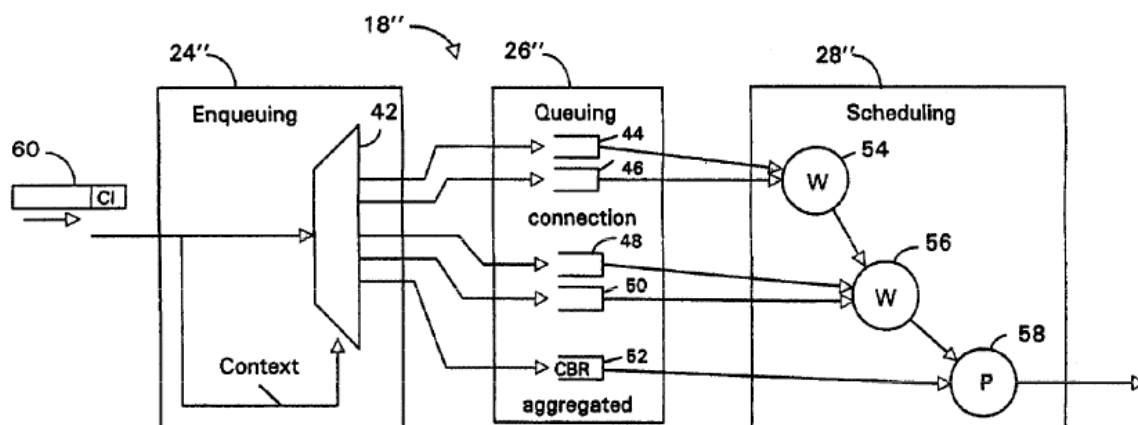


FIG. 3 Prior Art

As shown above, output port 18" includes enqueueer 24'', set of queues 26'', and scheduler 28'' (which includes three schedulers 54, 56, and 58).

Ex. 1006, 6:65–67. Set of queues 26” includes, for example, aggregated connection queues 48, 50, which “are for aggregating PDUs of the same QoS type . . . from different connections.” *Id.* at 7:1–9; *see also id.* at 7:9–10 (“Typically, there would be an aggregated connection queue for each QoS type.”). Output port 18” operates similarly to output port 18’:

In operation, an encapsulated PDU 60 arrives at the output port 18” from the switching fabric 16. The PDU 60 includes a connection identifier (CI) which has a context associated with it. The selection block 42 uses this context to determine into which of the queues 44–52 the PDU should be sent. The priority scheduler 58 . . . [serves] [t]he WFQ scheduler 56 . . . whenever the CBR queue 52 is empty. . . . WFQ schedulers 54, 56 perform weighted fair scheduling of their respective queues.

Id. at 7:23–37.

3. *Andrikopoulos (Ex. 1007)*

Andrikopoulos describes a multi-protocol label switching (MLPS) network. Ex. 1007, 207, 210, 213. Packets are forwarded through the MPLS network by label switching routers (LSRs) using an assigned LSP. *Id.* at 210, 213. Andrikopoulos states that “[e]ach IP packet belonging to the same stream is mapped to a corresponding Forwarding Equivalence Class (FEC) when it arrives at LSR1,” the first LSR in the network. *Id.* at 213; *see also id.* at 210 (stating that “packets from an aggregate of one or more flows are said to belong to a stream”). “The IP packets are then forwarded to their next hop” using a label assigned to their corresponding FEC, and “[a]t subsequent hops the label is swapped with a new one.” *Id.* at 213.

E. Obviousness Ground Based on Kodialam and Cheesman

Petitioner contends that the subject matter of claims 25–27 would have been obvious over Kodialam and Cheesman. Pet. 32–46. Patent Owner contends that Petitioner fails to show two of the requirements of independent claim 25: “separating the first aggregate flow into a plurality of individual micro-flows at the ingress line card, each individual micro-flow comprising a data flow” (Prelim. Resp. 11–22), and “assembling the plurality of individual micro-flows into a second aggregate flow having a quality of service capable of supporting the quality of service of the plurality of micro-flows” (*id.* at 22–31).

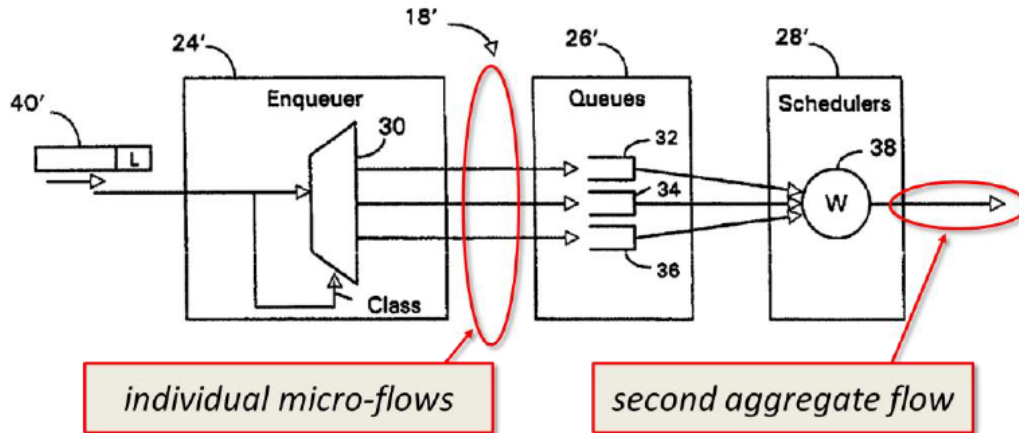
We have considered the parties’ arguments and the evidence presented at this stage. For the reasons explained below, we determine that Petitioner has not demonstrated a reasonable likelihood that it will prevail in showing that the subject matter of claims 25–27 would have been obvious over Kodialam and Cheesman.

1. Claim 25

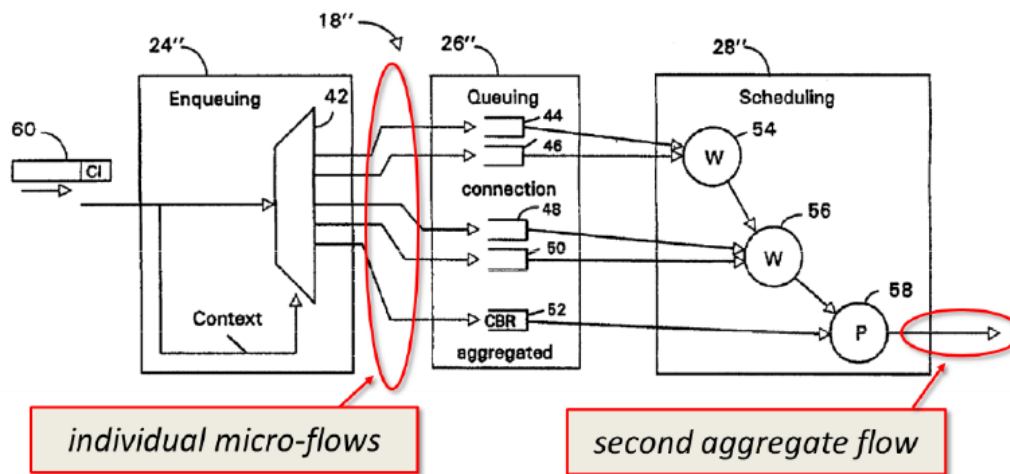
a) Summary of Petitioner’s Contentions

The method of claim 25 recites, *inter alia*, “receiving a first aggregate flow[,] . . . separating the first aggregate flow into a plurality of individual micro-flows[,] . . . assembling the plurality of individual micro-flows into a second aggregate flow[,] . . . and transmitting the second aggregate flow.” Ex. 1001, 22:62–23:12.

Petitioner primarily relies on Cheesman for these aspects of the claim. *See* Pet. 34–41, 43–46. To illustrate its mapping, Petitioner annotates Figures 2 and 3 of Cheesman. *Id.* at 40, 44. Below, we have reproduced one set of Petitioner’s annotations:



Cheesman, Fig. 2 (annotated)



Cheesman, Fig. 3 (annotated)

As shown above, Figures 2 and 3 each depict an output port 18 that includes enqueuer 24, set of queues 26, and scheduler 28. Ex. 1001, 5:49–59, 6:62–7:3. In the above annotations, Petitioner designates the lines connecting enqueuer 24 and set of queues 26 as the claimed “individual micro-flows” and the output of scheduler 28 as the claimed “second aggregate flow.” Pet. 44 (emphases removed). Moreover, in another annotation of these figures, Petitioner designates the input to enqueuer 24 as the claimed “first aggregate flow.” *Id.* at 40 (emphasis removed).

For the claim's requirement of "separating the first aggregate flow into a plurality of individual micro-flows," Petitioner contends that Cheesman's enqueueer 24 places arriving PDUs into the different queues 26 based on the PDU's service class or QoS type. Pet. 39–41 (citing Ex. 1006, 5:61–66, 7:1–10, 7:23–27, Figs. 2–3; Ex. 1003 ¶¶ 164–166). For the requirement of "assembling the plurality of individual micro-flows into a second aggregate flow," Petitioner contends Cheesman's scheduler 28 "determines from which queue 32, 34, 36 the next PDU to be transmitted will be selected." *Id.* at 43 (quoting Ex. 1006, 6:2–4; citing Ex. 1006, 5:49–55, 6:62–7:37, Figs. 2–3; Ex. 1003 ¶¶ 172–173). According to Petitioner, "sets of PDUs [are] pulled from the various queues and re-assembled into aggregate traffic flows before being transmitted along a particular LSP." *Id.* at 43–44 (citing Ex. 1003 ¶ 174).

Further, claim 25 requires that the second aggregate flow "hav[e] a quality of service capable of supporting the quality of service of the plurality of micro-flows." Ex. 1001, 23:7–10. Regarding this limitation, the Petition includes the following paragraph:

Cheesman also discloses that "the egress processor is operable to associate a flow identifier with a protocol data unit based on a traffic flow associated with the protocol data unit," and the scheduler performs "scheduling of the protocol data units on a flow-basis according to the flow identifier." "This feature enables connection-oriented-like Quality of Service (QoS) functionality to be provided." Cheesman's scheduler pulls sets of PDUs from the different queues and re-assembles them into an aggregate traffic flow, based on QoS type. The re-assembled PDU sets would have the same QoS types (or associated LSPs), and therefore the resulting aggregate traffic flow *ha[s] a quality of service capable of supporting the quality of service of the plurality of micro-flows.*

Pet. 45 (quoting Ex. 1006, 3:17–25; citing Ex. 1003 ¶ 175). Dr. Jeffay’s testimony includes the same quotations from Cheesman and provides substantially the same conclusions. *See* Ex. 1003 ¶ 175.

b) Analysis

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1358, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (2012)); *see also* *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“Unlike district court litigation—where parties have greater freedom to revise and develop their arguments over time and in response to newly discovered material—the expedited nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute.”). A petition must specify where each claim limitation is found in the cited references and must identify “specific portions of the evidence that support the challenge.” 37 C.F.R. § 42.104(b)(4)–(5); *see also id.* § 42.22(a)(2) (requiring “a detailed explanation of the significance of the evidence”).

Here, Petitioner contends that Cheesman discloses “assembling the plurality of individual micro-flows into *a second aggregate flow having a quality of service capable of supporting the quality of service of the plurality of micro-flows*,” as required by claim 25, but the Petition does not identify where Cheesman discloses the italicized claim language, which we call the “QoS-capability limitation.” *See* Pet. 45. In addition, the Petition does not sufficiently explain why a person of ordinary skill in the art would have understood these claimed aspects to be taught or suggested by Cheesman. Thus, the Petition’s showing for this limitation is insufficient.

As noted above, for the QoS-capability limitation, the Petition includes one relevant paragraph. *See* Pet. 45 (*quoted by* § II.E.1.a, *supra*). We address the sentences in that paragraph in turn.

The paragraph begins with quotations from Cheesman’s Summary of the Invention, but the significance of these quotations is not apparent. *See* Pet. 45 (quoting Ex. 1006, 3:17–25). In the quotations, Cheesman discusses scheduling PDUs “on a flow-basis” according to a flow identifier associated with a PDU, which “enables connection-oriented-like Quality of Service (QoS) functionality to be provided.” Ex. 1006, 3:17–25. However, the Petition only includes two other passing references to these concepts. *See* Pet. 37 (citing Ex. 1006, 9:47–48), 42 (citing Ex. 1006, 3:24–25, 8:10–13). Elsewhere, Petitioner relies on the descriptions of Figures 2 and 3—which instead illustrate a prior art output port 18—neither of which provides flow-based scheduling. Ex. 1006, 5:49–51, 6:62–63; *see* Pet. 43–44 (relying on Figures 2 and 3 for the assembling limitation); Ex. 1006, 5:49–7:58 (describing Figures 2 and 3). Moreover, neither the Petition nor its citations to Cheesman address the meaning of “connection-oriented-like Quality of Service (QoS) functionality.” Ex. 1006, 3:24–25. Accordingly, even though these quotations refer to QoS, the Petition does not sufficiently explain the relevance of these quotations to Petitioner’s contentions.

The next sentence in the Petition is also unavailing. It states: “Cheesman’s scheduler pulls sets of PDUs from the different queues and re-assembles them into an aggregate traffic flow, based on QoS type.” Pet. 45 (citing Ex. 1003 ¶ 175). The cited passage of Dr. Jeffay’s testimony quotes the same paragraph in Cheesman’s Summary of the Invention and then similarly states:

As such, a [person of ordinary skill in the art] would have understood that just as sets of PDUs are sent to different queues based on QoS type, Cheesman's scheduler would pull sets of PDUs from the different queues, and subsequently re-assemble the sets of PDUs into an aggregate traffic flow, based on QoS type.

Ex. 1003 ¶ 175 (emphasis added to highlight differences between Dr. Jeffay's testimony and the statements in the Petition). We agree with Petitioner that Cheesman's scheduler 28 pulls PDUs from different queues based on QoS type. *E.g.*, Ex. 1006, 7:1–37. But, even if this shows disclosure of “assembling the plurality of individual micro-flows into a second aggregate flow,” as required by the claim, the Petition does not explain how or why this discloses the QoS-capability limitation, which requires the “second aggregate flow [to] ha[ve] a quality of service capable of supporting the quality of service of the plurality of micro-flows.” Moreover, as noted above, the Petition does not explain whether (or why) this is related to the flow-based scheduling addressed in the prior sentences. *See* Pet. 45.

Finally, the paragraph ends with a conclusory sentence: “The re-assembled PDU sets would have the same QoS types (or associated LSPs), and therefore the resulting aggregate traffic flow *ha[s] a quality of service capable of supporting the quality of service of the plurality of micro-flows.*” Pet. 45 (citing Ex. 1003 ¶ 175). This sentence, taken alone or with the prior sentences, is insufficient.

First, Petitioner does not sufficiently explain its premise (i.e., “re-assembled PDU sets would have the same QoS types (or associated LSPs)”). To the extent that Petitioner contends that PDUs assembled from different queues would have the same QoS type as each other, we disagree. As Patent

Owner explains (*see* Prelim. Resp. 27–29), PDUs from different queues (such as queue 48 and queue 50) will have *different* QoS types. *See* Ex. 1006, 7:1–9 (explaining that aggregated connection queues 48, 50 that “are for aggregating PDUs of the same QoS type . . . from different connections”), Fig. 3; *see id.* at 7:9–10 (“Typically, there would be an aggregated connection queue for each QoS type.”). To the extent Petitioner seeks to advance a different contention, it is insufficiently explained.

Second, even if we were to accept the premise, the Petition does not sufficiently explain *why* the QoS-capability limitation follows from it. Stated differently, Petitioner provides no explanation of the relationship between these concepts, and we perceive no apparent connection.⁹ Rather, the Petition merely asserts that these concepts are connected, and this is not sufficient. Petitioner’s citation to Dr. Jeffay’s testimony is unavailing because Dr. Jeffay provides the same conclusory statements without sufficient explanation. *See* Ex. 1003 ¶ 175; Prelim. Resp. 28–29; *see also TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1358 (Fed. Cir. 2019) (“Conclusory expert testimony does not qualify as substantial evidence.”).

Moreover, our attempts to understand the basis of Petitioner’s contention are frustrated to some degree by a lack of clarity elsewhere in this ground. In particular, although Petitioner contends that Cheesman discloses the claimed “individual micro-flows,” the Petition’s mapping on this limitation is vague. *See* Pet. 38–41. Petitioner generally points to the

⁹ We have considered the portions of Cheesman cited elsewhere by the Petition. However, we do not determine whether *other* aspects of Cheesman or Kodialam teach or suggest the QoS-capability limitation because that is not our role. *See, e.g., In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380–1381 (Fed. Cir. 2016).

separation of PDUs “into classes of packets based on QoS or differentiated service type” as separating an aggregate flow into a plurality of micro-flows. *Id.* at 39–41 (citing Ex. 1006, 5:61–66, 7:1–10, Figs. 2–3). Similarly, for the requirement of assembling the micro-flows into a second aggregate flow, Petitioner generally points to Cheesman’s scheduler 28, which pulls PDUs from the queues. *Id.* at 43–44 (citing Ex. 1006, 5:49–55, 6:2–4, 6:62–7:37, Figs. 2–3). As a result of these general statements, it is not clear whether Petitioner contends that an individual micro-flow maps to: a single packet in a queue, all packets in a queue, some subset of the packets in a queue, or something else. This ambiguity infects the QoS-capability limitation, which recites “the quality of service of the plurality of micro-flows.” While this ambiguity alone would not be fatal at this stage, it further frustrates attempts to understand the Petition’s contention for the QoS-capability limitation.

Consequently, Petitioner has not met its burden on the QoS-capability limitation. The Petition identifies no passage of Cheesman that provides an express discussion of the quality of service of the traffic flow created by Cheesman’s scheduler, or whether that traffic flow “ha[s] a quality of service capable of supporting the quality of service of the plurality of micro-flows,” as required by the QoS-capability limitation. Moreover, the Petition does not explain why a person of ordinary skill in the art would have perceived a disclosure of the QoS-capability limitation in Cheesman, or why this limitation would have been obvious in light of the references.

2. Conclusion

Accordingly, on this record, we determine that Petitioner has not sufficiently shown that Cheesman teaches or suggests “assembling the plurality of individual micro-flows into *a second aggregate flow having a*

quality of service capable of supporting the quality of service of the plurality of micro-flows,” as required by claim 25. *See* Pet. 43–45. The Petition does not rely on Kodialam for these aspects of the claim. *See id.* Consequently, Petitioner has not shown a reasonable likelihood that independent claim 25 is unpatentable as obvious in light of Kodialam and Cheesman.

Claims 26 and 27 both depend from (and include the limitations of) independent claim 25 (Ex. 1001, 23:14–22), and consequently, Petitioner similarly does not show a reasonable likelihood that these claims are unpatentable as obvious in light of Kodialam and Cheesman.

F. Obviousness Ground Based on Andrikopoulos and Cheesman

Petitioner also contends that the subject matter of claims 25–27 would have been obvious over Andrikopoulos and Cheesman. Pet. 63–78. However, Petitioner again relies on Cheesman for the QoS-capability limitation using the same analysis discussed above. *See id.* at 77 (citing *id.* at 43–45). Petitioner does not point to Andrikopoulos to address this claim language. *Id.* Consequently, for the reasons explained above (*see supra* § II.E), Petitioner also has not shown a reasonable likelihood that any of claims 25–27 are unpatentable as obvious in light of Andrikopoulos and Cheesman.

III.CONCLUSION

Based on the record before us, the information presented in the Petition and accompanying evidence does not establish a reasonable likelihood that Petitioner would prevail in showing the unpatentability of any of claims 25–27 on the grounds asserted in the Petition. Patent Owner

disclaimed all other challenged claims. Accordingly, we do not institute an *inter partes* review.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is denied and no trial is instituted.

IPR2021-01005
Patent 7,012,919 B1

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