

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JUNIPER NETWORKS, INC. and PALO ALTO NETWORKS, INC.,
Petitioner,

v.

PACKET INTELLIGENCE LLC,
Patent Owner.

IPR2020-00336
Patent 6,665,725 B1

Before STACEY G. WHITE, CHARLES J. BOUDREAU, and
JOHN D. HAMANN, *Administrative Patent Judges*.

WHITE, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Juniper Networks, Inc. and Palo Alto Networks, Inc. (collectively “Petitioner”) filed a Petition requesting an *inter partes* review of claims 10, 12, 13, 16, and 17 (“the challenged claims”) of U.S. Patent No. 6,665,725 B1 (Ex. 1002, “the ’725 patent”). Paper 3 (“Pet.”). Packet Intelligence LLC and Packet Intelligence Holdings LLC (collectively “Patent Owner”) filed a Preliminary Response. Paper 7. With our authorization (Paper 8), Petitioner filed a Preliminary Reply (Paper 9) and Patent Owner filed a Preliminary Sur-Reply (Paper 10). Based on our review of these submissions and associated evidence, we instituted *inter partes* review of the challenged claims. Paper 21 (“Dec.”). After institution, Patent Owner filed a Patent Owner Response (Paper 26, “PO Resp.”), Petitioner filed a Reply (Paper 29, “Reply”), and Patent Owner filed a Sur-Reply (Paper 32, “Sur-Reply”).

A combined oral hearing with cases IPR2020-00336 and IPR2020-00337 was held on June 9, 2021, and a transcript of the hearing is included in the record (Paper 47, “Tr.”). The transcript of an oral hearing held the same day in cases IPR2020-00338, IPR2020-00339, and IPR2020-00486, also involving patents related to the ’725 patent, also is included in the record of this proceeding.¹ Paper 46 (“338 Tr.”).

Following oral hearing, we ordered the parties to provide additional briefing on the claim-construction arguments presented in the briefs and at oral hearing. Paper 41. Petitioner and Patent Owner each filed respective Opening Briefs on claim construction. *See* Paper 42 (“Petitioner’s Opening

¹ The parties had no objection to entering into this record the transcript from the oral hearing for IPR2020-00338, IPR2020-00339, and IPR2020-00486. Tr. 7:15–8:5; 338 Tr. 5:22–6:10.

Brief” or “Pet. Br.”); Paper 43 (“Patent Owner’s Opening Brief” or “PO Br.”). Petitioner filed a Responsive Brief to Patent Owner’s Opening Brief, Paper 44 (“Petitioner’s Responsive Brief” or “Pet. Resp. Br.”), and Patent Owner filed a Responsive Brief to Petitioner’s Opening Brief, Paper 45 (“Patent Owner’s Responsive Brief” or “PO Resp. Br.”).

We have jurisdiction under 35 U.S.C. § 6. This Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine Petitioner has shown, by a preponderance of the evidence, that claims 10, 12, 13, 16, and 17 of the ’725 patent are unpatentable.

A. Related Matters

The parties identify two district court litigations as related matters that involve the ’725 patent: *Packet Intelligence LLC v. Juniper Networks, Inc.*, 3:19-cv-04741 (N.D. Cal.) and *Palo Alto Networks, Inc. v. Packet Intelligence LLC*, No. 3:19-cv-02471 (N.D. Cal). Pet. 1; Paper 6, 2. The parties also identify as related matters *Packet Intelligence LLC v. NetScout Systems, Inc.*, No. 2:16-cv-230-JRG (E.D. Tex.) and *Packet Intelligence LLC v. NetScout Systems, Inc.*, No. 19-2041 (Fed. Cir.).² Pet. 1; Paper 6, 2. In addition, the parties identify the following matters pending before the Board, challenging claims of patents related to the ’725 patent: IPR2020-00337, IPR2020-00338, IPR2020-00339, and IPR2020-00486. Pet. 1; Paper 6, 2–3. Lastly, the parties collectively identify the following matters,

² A copy of the Final Judgment in Case No. 2:16-cv-00230, dated September 7, 2018, has been filed by Patent Owner in the record of this proceeding as Exhibit 2059, and a copy of the Decision of the U.S. Court of Appeals for the Federal Circuit in Appeal No. 19-2041, dated July 14, 2020, has been filed by Patent Owner in the record of this proceeding as Exhibit 2060.

no longer pending before the Board, as being related: (i) IPR2017-00862, IPR2017-00863, and IPR2019-01291, which challenged certain claims of the '725 patent; and (ii) IPR2017-00450, IPR2017-00451, IPR2017-00629, IPR2017-00630, IPR2017-00769, IPR2019-01289, IPR2019-01290, IPR2019-01292, and IPR2019-01293, IPR2020-00335, IPR2020-00485, which challenged claims of patents related to the '725 patent. Pet. 2; Paper 6, 3–5.

B. The '725 Patent

The '725 patent is titled “Processing Protocol Specific Information in Packets Specified by a Protocol Description Language.” Ex. 1002, code (54). The '725 patent describes a “method of performing protocol specific operations on a packet passing through a connection point on a computer network.” *Id.* at 3:61–63. “The method includes receiving the packet and receiving a set of protocol descriptions for protocols that may be used in the packet.” *Id.* at 3:66–4:2. The method further “includes performing the protocol specific operations on the packet specified by the set of protocol descriptions based on the base protocol of the packet” and the children of the protocols used in the packet. *Id.* at 4:8–12. “The protocol specific operations include parsing and extraction operations to extract identifying information,” and “state processing operations defined for a particular state of a conversational flow of the packet.” *Id.* at 4:17–21.

Figure 1 of the '725 patent is reproduced below.

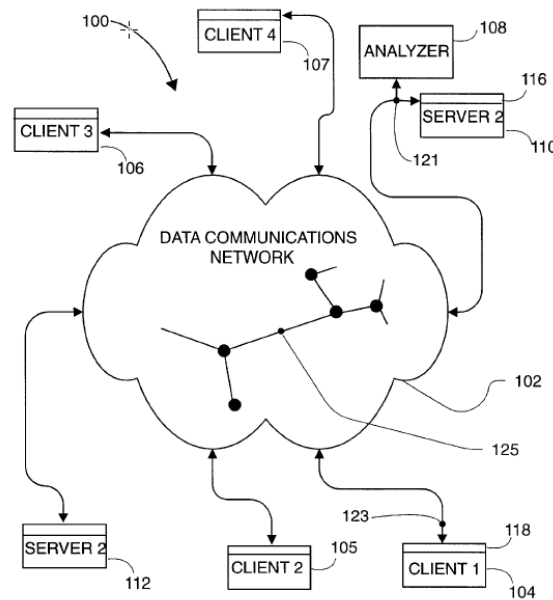


FIG. 1

Figure 1 illustrates a network in “which a monitor is connected to analyze packets passing at a connection point.” *Id.* at 4:30–32. System 100 illustrated in Figure 1 includes computer network 102 that communicates packets between clients 104–107 and servers 110 and 112. *Id.* at 5:63–66. Monitor 108 examines the packets passing in either direction past its connection point 121 and can elucidate what application programs are associated with each packet. *Id.* at 6:1–5. Network activity (for example, an application program run by client 104 communicating with another running on server 110) will produce an exchange of a sequence of packets over network 102 that is characteristic of the respective programs and of the network protocols. *Id.* at 6:18–23. The packets are subsequently parsed then analyzed in the context of various protocols, for example, the transport through the application session layer protocols for packets of a type conforming to an International Standardization Organization (“ISO”) layered network model. *Id.* at 6:27–31.

Figure 3 of the '725 patent is reproduced below.

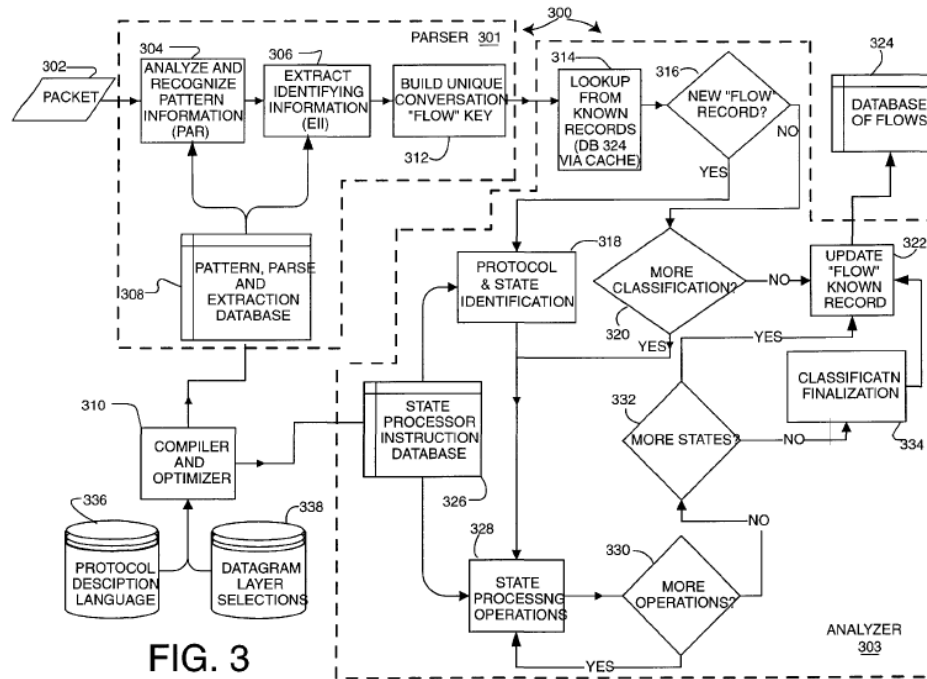


Figure 3 is a functional block diagram of a process embodiment of the '725 patent's system, which utilizes the packet monitor shown in Figure 1. *Id.* at 4:45–48. More specifically, Figure 3 shows network packet monitor 300, similar to monitor 108 in Figure 1. *Id.* at 8:48–50. Packet 302 is examined, and the packet is evaluated, for example in an attempt to determine its characteristics, *e.g.*, all the protocol information in a multi-level model, including what server application produced the packet. *Id.* at 8:51–57. Monitor 300 further includes: (1) compiler and optimizer 310 that initializes monitor 300 to generate the operations necessary to occur on packets of different types; (2) parser 301 that parses and extracts selected portions of packets to generate an identifying signature; and (3) analyzer 303 that analyzes the packets. *Id.* at 8:64–9:3.

The '725 patent explains that a flow is “[a] stream of packets being exchanged between any two addresses in the network.” *Id.* at 9:9–10. As

described by the '725 patent, when compiler and optimizer 310 executes, it generates two sets of internal data structures: parsing/extraction operations 308 and state patterns and processes 326. *Id.* at 9:42–44, 9:53–54. Database 308 of parsing/extracting operations includes information describing how to determine a set of protocol dependent extraction operations from data in the packet that indicate a protocol used in the packet. *Id.* at 9:48–52. Database 326 of state patterns and processes includes different states and state transitions that occur in different conversational flows, and describe the task of analyzing a conversational flow. *Id.* at 9:54–60.

The '725 patent further describes that packet 302 is input into a packet buffer, where pattern recognition process 304 analyzes and recognizes patterns in the packets. *Id.* at 10:3–7. Subsequently, extraction process 306 extracts selected parts of the packet, including identifying information from the packet as required for recognizing the packet as part of a flow. *Id.* at 10:19–25. “The extracted information subsequently is processed in block 312 to build a unique flow signature (*i.e.*, “key”) for [the] flow.” *Id.* at 10:25–27. The extracted information from the packet (*i.e.*, “parser record”) is subsequently “passed onto lookup process 314 which looks in an internal data store of records of known flows that the system has already encountered.” *Id.* at 10:58–60. At block 316, lookup process 314 decides whether the “packet belongs to a known flow as indicated by the presence of a flow-entry matching the flow in a database of known flows 324.” *Id.* at 10:60–65.

C. Illustrative Claim

Of the challenged claims, claims 10 and 17 are independent.

Claims 12, 13, and 16 depend from claim 10. Claim 10 is illustrative of the claimed subject matter and is reproduced below:

10.A method of performing protocol specific operations on a packet passing through a connection point on a computer network, the method comprising:

(a) receiving the packet;

(b) receiving a set of protocol descriptions for a plurality of protocols that conform to a layered model, a protocol description for a particular protocol at a particular layer level including:

(i) if there is at least one child protocol of the protocol at the particular layer level, the one or more child protocols of the particular protocol at the particular layer level, the packet including for any particular child protocol of the particular protocol at the particular layer level information at one or more locations in the packet related to the particular child protocol,

(ii) the one or more locations in the packet where information is stored related to any child protocol of the particular protocol, and

(iii) if there is at least one protocol specific operation to be performed on the packet for the particular protocol at the particular layer level, the one or more protocol specific operations to be performed on the packet for the particular protocol at the particular layer level; and

(c) performing the protocol specific operations on the packet specified by the set of protocol descriptions based on the base protocol of the packet and the children of the protocols used in the packet,

wherein the protocol specific operations include one or more parsing and extraction operations on the packet to extract selected portions of the packet to form a function of the

selected portions for identifying the packet as belonging to a conversational flow.

Ex. 1002, 96:24–57.³

D. Instituted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 10):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
10, 12, 13, 16, 17	103(a) ⁴	Riddle, ⁵ Baker ⁶
10, 12, 13, 16, 17	103(a)	Riddle, Baker, Yu ⁷
10, 12, 13, 16, 17	103(a)	Riddle, Baker, RFC1945 ⁸

Pet. 16–96. Petitioner submits the Declaration of Dr. Jon B. Weissman (Ex. 1006) in support of its arguments.

³ In a Certificate of Correction, “In” was changed to “in” at column 96, line 38. Ex. 1002, Certificate of Correction.

⁴ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’725 patent issued from an application filed before March 16, 2013, we apply the pre-AIA version of the statutory basis for unpatentability.

⁵ U.S. Patent No. 6,412,000 B1 (issued June 25, 2002) (Ex. 1008).

⁶ PCT Published Application No. WO 97/23076 (published June 26, 1997) (Ex. 1013).

⁷ U.S. Patent No. 6,625,150 B1 (issued Sept. 23, 2003) (Ex. 1011).

⁸ T. Berners-Lee et al., *Hypertext Transfer Protocol -- HTTP/1.0*, Request for Comments 1945, Network Working Group (May 1996) (“RFC1945”) (Ex. 1010).

II. ANALYSIS

A. Level of Ordinary Skill in the Art

To determine whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). The resolution of this question is important because it allows us to “maintain[] objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation omitted). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovation Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Here, we initially adopted Petitioner’s description of a person of ordinary skill in the art. Dec. 26–27. Petitioner copied the Board’s previous preliminary finding for the level of ordinary skill in the art for a related patent and argues that one of ordinary skill in the art at the time of the invention of the ’725 patent would have “had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field (or its equivalent), and one to two years of experience working in networking environments, including at least some experience with network

traffic monitors and/or analyzers.” Pet. 11 (citing Ex. 1056 (IPR2017-00450 Institution Decision), 13–14; Ex. 1006 ¶¶ 195–201). Patent Owner does not dispute this description. PO Resp. 21 (citing Dec. 26–27). We note that Petitioner’s assessment appears consistent with the level of ordinary skill in the art at the time of the invention as reflected in the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Based on our review of the complete record, we agree with Petitioner’s assessment and maintain the decision to adopt Petitioner’s description of the level of skill in the art.

B. Claim Construction

In an *inter partes* review proceeding, a patent claim shall be construed 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) (as amended Oct. 11, 2018). This rule adopts the same claim construction standard used by Article III federal courts, which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. Under this standard, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See Phillips*, 415 F.3d at 1312–13.

1. *Incorporation by reference of previous disclosures*

The ’725 patent claims the benefit of U.S. Provisional Application No. 60/141,903, filed on June 30, 1999 (Ex. 1016, “the provisional application”). *See* Ex. 1002, code (60). The ’725 patent states that the contents of the provisional application, as well as the contents of several

other U.S. patent applications, including Application No. 09/608,237, filed June 30, 2000, which issued as U.S. Patent No. 6,651,099 on November 18, 2003 (Ex. 1001, “the ’099 patent”), “are incorporated herein by reference.” *See* Ex. 1002, 1:8–12 (incorporating by reference the provisional application), 1:17–20 (incorporating by reference the application leading to the ’099 patent), 1:22–27 (incorporating by reference U.S. Patent Application No. 09/608,126), 1:28–32 (incorporating by reference U.S. Patent Application No. 09/608,266), 1:33–37 (incorporating by reference U.S. Patent Application No. 09/608,267). Throughout their papers, the parties refer to the disclosures of the ’099 patent and the provisional application, and state that the ’725 patent incorporates the entire contents of those disclosures. *See, e.g.*, PO Resp. 2 n.1; Reply 2 n.1, 3–4.

We agree with the parties that the ’725 patent incorporates the disclosures of the ’099 patent and the provisional application by specific reference to those documents. Ex. 1002, code (60), 1:8–12, 1:17–20; *see also* 37 C.F.R. § 1.57. Thus, we also refer to the ’099 patent and the provisional application when discussing claim construction—not only for consistency with the parties, but also for consistency throughout our final decisions involving related *inter partes* proceedings between these parties. *See Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000) (stating that material incorporated by reference is “effectively part of the host document as if it were explicitly contained therein”); *see also Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1365–66 (Fed. Cir. 2016) (using statements in a provisional application to construe claim terms in a patent incorporating the provisional application by reference).

2. Overview

The only claim-construction dispute remaining in this proceeding concerns the meaning of “conversational flow,” as recited in independent claims 10 and 17. *See, e.g.*, Ex. 1002, 96:56–57 (claim 10 reciting “identifying the packet as belonging to a conversational flow.”). At the heart of the parties’ dispute is the following passage from the ’099 patent:

A conversational flow, on the other hand, is the sequence of packets that are exchanged in any direction as a result of an activity—for instance, the running of an application on a server as requested by a client. It is desirable to be able to identify and classify conversational flows rather than only connection flows. The reason for this is that *some conversational flows involve more than one connection, and some even involve more than one exchange of packets between a client and server.*

Ex. 1001, 2:37–45 (emphases added). In our Institution Decision, we preliminarily construed “conversational flow” as “sequence of packets that are exchanged in any direction as a result of an activity.” Dec. 31. We declined to include the phrases “for instance, the running of an application on a server as requested by a client” and “some conversational flows involve more than one connection,^[9] and some even involve more than one exchange of packets between a client and server” in the construction of “conversational flow,” as Patent Owner had requested. *Id.* We explained that those passages, because they begin with the phrases “for instance,” “where some,” and “some,” are “merely exemplary and non-limiting.” *Id.*

⁹ The ’099 patent expressly defines “connection flow”: “The term ‘connection flow’ is commonly used to describe all the packets involved with a single connection.” Ex. 1001, 2:35–37. Neither party disputes this definition of “connection flow.”

Petitioner does not challenge our preliminary construction. 338 Tr. 9:20–10:15; Tr. 10:23–11:11. Patent Owner, however, argues that our construction captures only a “*part* of the definition in the specification,” and improperly “excludes some of the clarifying language that is *also* part of the explicit definition in the specification.” PO Resp. 22. According to Patent Owner, “[t]hat clarifying language is important for understanding the nature of a conversational flow.” *Id.*

Specifically, Patent Owner argues that the written description of the ’725 patent provides an express definition of the term “conversational flow” and that the express definition controls even though it contains exemplary language. *Id.* at 22–23 (citing *Sinorgchem Co., Shandong v. Int’l Trade Comm’n*, 511 F.3d 1132, 1137 (Fed. Cir. 2007)). Patent Owner argues that the language following “for instance” is necessary for understanding a “conversational flow,” because that language “makes apparent that ‘conversational flow’ must relate to a conversation” and “involves an application activity involving *the same client*.” *Id.* at 26 (emphasis added); *see also* Sur-Reply 1 (arguing that an “‘activity’ occurs between specific entities”); PO Br. 1 (arguing that an activity “must relate to the actions of a particular client or end user”). “Ignoring that language,” Patent Owner argues, “risks losing the basic and fundamental requirement of a ‘conversation.’” PO Resp. 26

Patent Owner also argues our construction is incorrect because, prior to this *inter partes* review, “every tribunal to have considered the proper construction for ‘conversational flow’ has accepted . . . the construction advanced by Patent Owner” here:

the sequence of packets that are exchanged in any direction as a result of an activity—for instance, the running of an application on a server as requested by a client—and where some conversational flows involved more than one connection, and some even involve more than one exchange of packets between a client and server.

PO Resp. 23. As an example, Patent Owner argues that the District Court for the Eastern District of Texas adopted this construction in *Packet Intelligence LLC v. NetScout Systems, Inc.*, and that the Court of Appeals for the Federal Circuit “addressed conversational flows and connection flows when *affirming* the jury’s infringement verdict in *NetScout*, which necessarily hinged on applying the court’s claim construction of ‘conversational flow.’” *Id.* (citing Ex. 2060, 3).

3. Analysis

Independent claim 10 recites, in relevant part, “identifying the packet as belonging to a conversational flow” and independent claim 17 recites that “the packet belongs to a conversational flow of packets having a set of one or more states.” Ex. 1002, 96:56–57 (claim 10), 98:30–31 (claim 17). As explained above, the parties agree that “conversational flow” includes “the sequence of packets that are exchanged in any direction as a result of an activity,” but disagree about whether the phrases “for instance, the running of an application on a server as requested by a client” and “some conversational flows involve more than one connection, and some even involve more than one exchange of packets between a client and server” should limit the meaning of “conversational flow.” Patent Owner argues that those phrases are necessary because they make clear that a conversational flow is client-specific. Thus, the parties’ basic dispute is whether a conversational flow is limited to a *specific client or user*, as Patent

Owner argues, or may include *multiple clients or users*, as Petitioner contends. *Compare, e.g.*, PO Resp. 25 (arguing that “the basic and fundamental requirement’ of a conversational flow” is that it “involves an application activity involving the same client”), *with* Reply 3 (contending that “[t]he definitional language of ‘conversational flow’ doesn’t contain any requirement for identifying flows based on a particular user or client”).

Starting with the passage reproduced above that we identified as the heart of the parties’ dispute (Ex. 1001, 2:37–45), we determine that the “for instance” phrase is exemplary and does not limit a “conversational flow” to a specific client or user. The phrase “for instance” is synonymous with “for example,” and necessarily indicates that “the running of an application on a server as requested by a client” exemplifies, but does not limit, the conversational flow to a server and a specific client or user.

Our determination that the “for instance” phrase is exemplary and non-limiting is consistent with argument in its Preliminary Response that the “some” phrase (“some conversational flows involve more than one connection, and some even involve more than one exchange of packets between a client and server”) is non-limiting. Specifically, Patent Owner argued that the use of the word “some” necessarily means that “*some* conversational flows involve multiple connections, while, *some* involve a single connection.” Prelim. Resp. 25 (citing Ex. 1001, 2:34–45; Ex. 1016, 3:3–10). Similarly here, while “conversational flow” certainly may involve the running of an application on a server as requested by a single client or user, “conversational flow” is not *limited* to a single client or user.

Indeed, the ’099 patent and the provisional application expressly contemplate classifying connection flows from different clients into the

same conversational flow when those connections involve the same activity. These documents describe, in the context of identifying packets as part of a conversational flow, a client/server protocol known as Service Advertising Protocol (SAP), which is “used to identify the services and addresses of servers attached to a network.” Ex. 1016, 3:12–14; Ex. 1001, 2:49–52. The provisional application describes a packet exchange between a client and the server in which the client sends a SAP request to a server for print service, and the server sends a SAP reply that identifies the print service address:

In a first exchange, a client sends a SAP request to a server, for example, for print service. The server sends a SAP reply that identifies a particular address, for example, SAP #5, as the print service on that server. Such may be responses used to update a table, for example in a router, known as the Server Information Table.

Ex. 1016, 3:14–18; *see also* Ex. 1001, 2:53–58. The provisional application then describes a client who has “inadvertently seen” the SAP reply, and therefore does not need to make a SAP request, but may send a print request directly to SAP #5:

A client who has inadvertently seen this reply or who has access to the table (via the router that has the Server Information Table, for example) would know that SAP #5 for such this [*sic*] server is a print service. Therefore, in order to print data on the server, such a client does not need to make the request for a print service, but simply to send data to be printed specifying SAP #5.

Ex. 1016, 3:18–23; *see also* Ex. 1001, 2:58–64.

The provisional application explains that the packet exchange between the client who has “inadvertently seen” the print service address and SAP #5 is not connected to the initial packet exchange, “which was with a different client”:

This sending of data to be printed again involves an exchange of data between a client and a server, disjoint [*sic*] from the previous exchange which was *with a different client* setting up that SAP #5 is a print service on this server is a second connection.

Ex. 1016, 3:23–25 (emphasis added). Similarly, the '099 patent describes this packet exchange as “independent of the initial exchange.” Ex. 1001, 64–67.

The provisional application states that “[i]t is desirable for a network packet monitor to be able to ‘virtually concatenate’ the first exchange that defines SAP #5 as the print service on the server with the second exchange that uses the print service.” Ex. 1016, 3:25–28. In this case, the provisional application explains, the two packet exchanges (the first between a client and the server and the second between a client and SAP #5) “would then be correctly identified as being part of the same flow if the clients were the same,” but also, “[t]hey would *even be recognized if the clients were not the same.*” *Id.* at 3:28–30 (emphasis added). Similarly, the '099 patent states that “because one features [*sic*] of the invention is to correctly identify the second exchange as being associated with a print service on that server, such exchange would *even be recognized if the clients were not the same.*” Ex. 1001, 3:44–48 (emphasis added).

We interpret the SAP description in the provisional application and '099 patent as describing two seemingly disjointed packet exchanges involving two different clients or users (the first packet exchange between a client and the server and the second packet exchange between the client who has “inadvertently seen” the print service address and SAP #5) as belonging to the same “conversational flow.” And because Patent Owner’s proposed

construction—that a “conversational flow” is client-specific—is inconsistent with the written description, we decline to limit a “conversational flow” to a specific client or user.

Patent Owner argues that our interpretation of the SAP example is incorrect because “[t]he second sentence” of that example—i.e., “such exchange would even be recognized if the clients were not the same”—merely “illustrates how a later print request by a different client can also be recognized as a *print request activity* because it uses the now known address of the print service.” Sur-Reply 7 (emphasis added). We are not persuaded. In the provisional application, this description of the second client follows the statement that “[i]t is desirable to be able to identify and classify *conversational flows*,” Ex. 1016, 3:7–8 (emphasis added), and is followed by statements describing “[o]ther protocols that are similar in that they may lead to disjointed *conversational flows*,” *id.* at 4:1–5 (emphasis added). The provisional application also states that “[p]rior art network monitors do not presently have the ability to recognize such disjointed flows as belonging to the same conversational flow.” *Id.* at 4:13–14. Similarly, in the ’099 patent, the phrase “such exchange would even be recognized if the clients were not the same” is soon followed by the statement that “[w]hat distinguishes this invention from prior art network monitors is that it has the ability to *recognize disjointed flows as belonging to the same conversational flow*.” Ex. 1001, 3:48–51 (emphasis added). We view these statements, in context, as reinforcing the notion that the disclosed invention sought to classify disjointed connection flows—even those involving more than one client or user—into the same conversational flow based on a specific activity, such as print service.

We are not persuaded by Patent Owner's argument that *Sinorgchem*, compels a different result here. See PO Resp. 24. In *Sinorgchem*, the claim language at issue was "controlled amount," of which the patent stated:

A 'controlled amount' of protic material is an amount up to that which inhibits the reaction of aniline with nitrobenzene, e.g., up to about 4% H₂O based on the volume of the reaction mixture when aniline is utilized as the solvent.

511 F.3d at 1136. The International Trade Commission "agreed that the patentee had expressly defined the term 'controlled amount' in the specification but held that the language 'e.g., up to about 4% H₂O based on the volume of the reaction mixture when aniline is utilized as the solvent' should not be considered part of that definition," in part because the Commission considered "the 4% limit as merely an example that did not apply to all situations in which aniline was used as the solvent." *Id.* at 1137. The Federal Circuit rejected the Commission's construction, holding that "[w]hen aniline is used as the solvent, the express definition is neither ambiguous nor incomplete—the 'controlled amount' is 'up to about 4% H₂O based on the volume of the reaction mixture'—and we need look no further for its meaning." *Id.* at 1138.

Patent Owner argues that *Sinorgchem* stands for the proposition that an express definition in the specification controls even if it contains exemplary language. PO Resp. 23. According to Patent Owner, the phrase "for instance, the running of an application on a server as requested by a client" is the express definition of "conversational flow" that we must accept, even though it contains the exemplary language "for instance." *Id.* We do not agree because, in *Sinorgchem*, the patent at issue described "at least six different solvents," of which aniline was just one example. The

Federal Circuit reasoned that, *when* aniline was used as the solvent, *then* the upper limit of protic material was “up to about 4% H₂O.” 511 F.3d at 1138. In other words, the use of aniline was a condition precedent (“when aniline is utilized”) that, when satisfied, triggered the condition subsequent upper limit of protic material (“up to about 4% H₂O”). *Id.* The language in the ’099 patent (“for instance, the running of an application on a server as requested by a client”)—unlike that in *Sinorgchem*—is not conditional. Thus, we find *Sinorgchem* to be inapposite to the facts of this case.

Finally, Patent Owner’s argument that “[b]efore the Institution Decisions in this and the related IPRs, every tribunal to have considered the proper construction for ‘conversational flow’ has accepted . . . the same construction advanced by Patent Owner,” PO Resp. 23–24, does not persuade us that our construction here is erroneous.

Despite Patent Owner’s argument, neither the District Court nor the Federal Circuit appears to have expressly analyzed “conversational flow” and determined that the claim term necessarily includes the language recited within the “for instance,” “where some,” and “some” phrases. In *Packet Intelligence LLC v. Netscout Systems*, for example, the District Court merely adopted Patent Owner’s construction without analysis after the parties “reached agreement” at a hearing dated March 2, 2017. Ex. 1067, 6. And the Federal Circuit, if anything, appears to have relied on a definition of “conversational flow” lacking the additional phrases Patent Owner advances here. Ex. 2060, 3. Specifically, in describing “conversational flows,” the court stated that:

The specifications explain that it is more useful to identify and classify “conversational flows,” *defined as* “the sequence of

packets that are exchanged in any direction as a result of an activity.”

Ex. 2060, 3 (citing Ex. 1001, 2:45–47) (emphasis added). Finally, we also observe that the Board’s constructions of “conversational flow” in prior proceedings were made in institution decisions and, thus, were merely preliminary. *See, e.g.,* Ex. 1056, 10 (interpreting “conversational flow” “*for purposes of this Decision*” (emphasis added)).

For these reasons, we have considered the constructions of the other panels and tribunals, but are not persuaded that our construction of “conversational flow” is mistaken or inconsistent with those other constructions. *See* 37 C.F.R. § 42.100 (b) (“Any prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the inter partes review proceeding *will be considered.*” (emphasis added)).

4. Summary

In summary, having considered the totality of the arguments and evidence anew at the close of trial, we determine that “conversational flow[s]” means a “sequence of packets that are exchanged in any direction as a result of an activity,” without the additional restriction that the conversational flow must be client- or user-specific.

C. Asserted Obviousness over Riddle and Baker

Petitioner argues that the combination of Riddle and Baker renders the challenged claims obvious under 35 U.S.C. § 103(a). Pet. 16–80.

1. Overview of Riddle

Riddle describes a method for automatically classifying packet flows for use in allocating bandwidth resources by a rule of assignment of a service level. Ex. 1008, 4:6–10. The method comprises applying individual instances of traffic classification paradigms to packet network flows based on selectable information obtaining from layers of a multi-layered communication protocol in order to define a characteristic class, then mapping the flow to the defined traffic class. *Id.* at 4:10–15. Figure 3 is reproduced below.

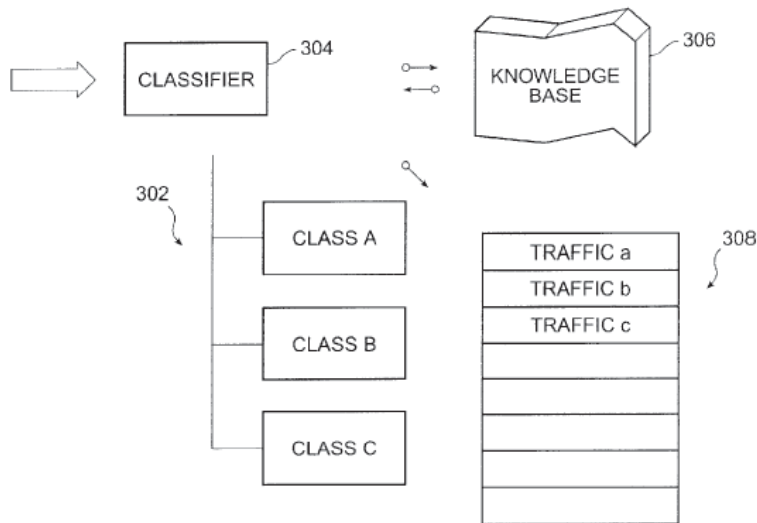


FIG. 3

Figure 3 illustrates a system for automatically classifying traffic. *Id.* at 12:27–28. Traffic tree 302 classifies new traffic under a particular member class node. *Id.* at 12:28–30. Traffic classifier 304 detects services for incoming traffic. *Id.* at 12:30–31. “Knowledge base 306 contains heuristics for determining traffic classes.” *Id.* at 12:32–33. “A plurality of saved lists 308 store classified traffic pending incorporation into traffic tree 302.” *Id.* at 12:37–38.

Figure 4A is reproduced below.

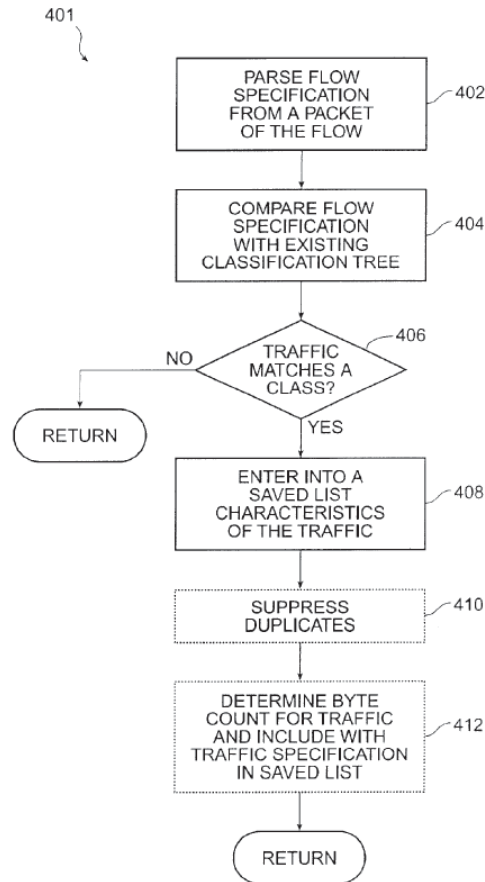


FIG. 4A

Figure 4A illustrates flowchart 401 depicting processing steps for automatically classifying traffic. *Id.* at 12:42–43. “In step 402, a flow specification is parsed from the flow being classified.” *Id.* at 12:43–44. “Then in step 404, the flow specification parsed from the flow in step 402 is compared with the traffic specifications in each node of the classification tree.” *Id.* at 12:44–47. In decisional step 406, a determination is made of whether traffic matches one of the classes being classified. *Id.* at 12:48–50. If this is so, then in step 408, an entry is made in a list of identifying characteristics, such as protocol type, IP protocol number, server port, traffic type, MIME type, or time of occurrence of traffic. *Id.* at 12:50–53.

Figure 4B is reproduced below.

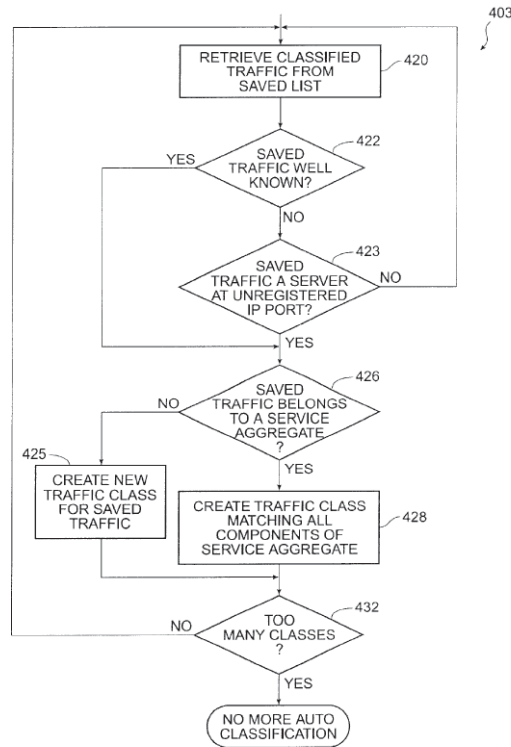


FIG. 4B

Figure 4B illustrates “flowchart 403 depicting the processing steps for integrating traffic classes into a classification tree.” *Id.* at 13:36–38. “In step 420, an instance of saved traffic is received from saved traffic list 308.” *Id.* at 13:40–42. “Next, in decisional step 422, the instance of saved traffic is examined to determine whether it is well-known and a name representing its type exists.” *Id.* at 13:42–45. “If this is so, processing continues with a test of whether the saved traffic belongs to a service aggregate in step 426.” *Id.* at 13:45–47. “Otherwise, in step 423, the instance of saved traffic is examined to determine whether it appears to be a server connection port of an unregistered IP port.” *Id.* at 13:47–50. “If this is not so, then processing continues with the next traffic class in the saved list in step 420.” *Id.* at 13:51–52. “In decisional step 426, the instance of saved traffic is examined

to determine whether it belongs to a service aggregate.” *Id.* at 13:52–54. “If the traffic does belong to a service aggregate, then, in step 428, a traffic class is created that will match all components of the service aggregate.” *Id.* at 13:57–59. “[In] step 425, a new traffic class is created to match the instance of saved traffic.” *Id.* at 13:59–62.

2. Overview of Baker

Baker describes “systems and methods for parsing, filtering, generating and analyzing data (or frames of data) transmitted over a data communications network.” Ex. 1013, 3:32–35. Figure 1 is reproduced below.

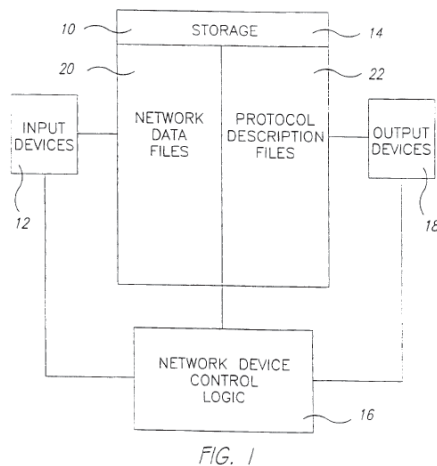


Figure 1 illustrates a network interface system. *Id.* at 8:11–13. Baker describes network interface system 10 implemented in a network device including input devices 12, data storage devices 14, analysis control logic 16 for facilitating input, storage, retrieval and analysis of network frames, and output devices 18 for forwarding frames or displaying or orienting the results of frames. *Id.* at 10:10–17. Data storage device 14 includes data file 20 of network frames having n protocol data records. *Id.* at 10:17–19. Protocol description files 22 also are stored in data storage device 14, where

protocol description files 22 describe a subset of a network protocol and include rules for analyzing that protocol. *Id.* at 10:21–25. Network device control logic 16 retrieves a subset of network frames from input devices 12 or data files 20 that satisfy criteria based upon extracted field values and filtering criteria contained in protocol description files 22. *Id.* at 10:26–31. Network device control logic 16 also determines frames and protocol header lengths, gathers statistics, performs verifications and error checks, determines routes, varies values, and formats output. *Id.* at 10:31–35.

Baker further describes that the network interface system parses successive protocol headers and further parses remaining information as application data and a frame pad. *Id.* at 26:27–32. Baker also describes that the network interface system parses fixed and optional fields in a selected protocol. *Id.* at 26:32–35. Baker additionally describes that the network interface system performs operations on extracted field values. *Id.* at 26:35–27:3. Baker further describes that the network interface system makes branching, next protocol determination, and validity decisions based on the extracted field values. *Id.* at 27:3–7.

3. Independent Claim 10

The preamble of independent claim 10 recites “[a] method of performing protocol specific operations on a packet passing through a connection point on a computer network.” Ex. 1002, 96:24–26. Petitioner contends that Riddle teaches the features recited in the preamble because it discloses applying individual instances of traffic classification paradigms to packet network flows based on selectable information obtained from a plurality of layers of a multi-layered communication protocol in order to define a characteristic class, then mapping the flow to the defined traffic

class. Pet. 31–32 (citing Ex. 1008, code (57), 4:10–15; Ex. 1006 ¶¶ 479–482). Petitioner further asserts that Riddle discloses network access through network routing means and/or routers, and that Riddle’s disclosure of a system connected to a network connection is consistent with the ’725 Patent’s disclosure related to the term “connection points.” *Id.* at 32–33 (citing Ex. 1008, 5:53–67, 6:9–15, 7:10–34, claim 8, Figs. 1A, 1B, 1C, 3; Ex. 1002, 5:60–6:15, Fig. 1; Ex. 1006 ¶ 481).

The body of independent claim 10 begins with the step of “receiving the packet.” Ex. 1002, 96:27. Petitioner asserts that Riddle’s traffic classifier detects services for incoming traffic. Pet. 34 (citing Ex. 1008, 12:30–31, Fig. 3; Ex. 1006 ¶ 483). Relying on its declarant, Dr. Weissman, Petitioner asserts that a person of ordinary skill in the art would have understood that traffic to teach the recited packets and that Riddle’s monitor receives those packets. *Id.* (citing Ex. 1006 ¶ 483).

Independent claim 10 next recites “receiving a set of protocol descriptions for a plurality of protocols that conform to a layered model, a protocol description for a particular protocol at a particular layer level including.” Ex. 1002, 96:28–31. Petitioner asserts that Riddle discloses management of network bandwidth by applying individual instances of traffic classification paradigms to packet network flows based on selectable information obtained from a plurality of layers of a multi-layered communication protocol in order to define a characteristic class, and then mapping the flow to the defined traffic class. Pet. 35–36 (citing Ex. 1008, code (57), 4:10–15; Ex. 1006 ¶ 486). Relying on its declarant, Petitioner asserts that a person of ordinary skill in the art would have understood that Riddle defines traffic classes based on IP addresses, port numbers, and

Universal Resource Identifier (“URI”) patterns. *Id.* at 36 (citing Ex. 1008, Table 1; Ex. 1006 ¶ 487). Furthermore, relying on its declarant, Petitioner asserts that “Riddle’s traffic classes are protocol layer independent, and therefore, can include traffic specifications based on information from any protocol layer or combination of layers.” *Id.* at 37 (citing Ex. 1008, 10:59–62; Ex. 1006 ¶ 488).

Petitioner further asserts that Baker stores protocol descriptions as “protocol description files (PDF),” and that Baker’s PDFs include a protocol control record and a plurality of field data records. *Id.* at 37–38 (citing Ex. 1013, 12:25–28, 19:6–10; Ex. 1006 ¶¶ 490, 492). According to Petitioner, relying on its declarant, a person of ordinary skill in the art would have been motivated to modify Riddle to include Baker’s configurable PDFs to receive a set of protocol descriptions for a plurality of protocols conforming to a layered model. *Id.* at 43–44 (citing Ex. 1006 ¶ 499). With respect to reasons to combine the teachings of Riddle and Baker, Petitioner contends that “Riddle and Baker are in the same field of endeavor,” “contain overlapping disclosures with similar purposes,” and that a person of ordinary skill in the art would have understood the benefit to having Riddle’s classification system allow for updating protocol descriptions. *Id.* at 28–29 (citing Ex. 1008, 1:54–57, 4:6–17; Figs. 1A, 1D; Ex. 1013, 1:2–2:10, 3:32–4:6; Ex. 1006 ¶¶ 403–404, 474, 472).

Independent claim 10 also recites “if there is at least one child protocol of the protocol at the particular layer level, the-one or more child protocols of the particular protocol at the particular layer level, the packet including for any particular child protocol of the particular protocol at the particular layer level information at one or more locations in the packet

related to the particular child protocol.” Ex. 1002, 96:32–39. Petitioner asserts that Riddle discloses parsing layered protocols, including identifying one or more child protocols at each of a plurality of layers in a packet of traffic classification, and that traffic classes may be defined at any level of the IP protocol as well as for any other non-IP protocols. Pet. 45 (citing Ex. 1008, code (57), Fig. 1D, 4:10–17; Ex. 1006 ¶ 502). Petitioner further asserts that Riddle discloses hierarchical traffic class membership such that a classification process checks at each level of a traffic class tree if the flow being classified matches the attributes of a given traffic class.” *Id.* (citing Ex. 1008, 9:20–24, 9:34–36; Ex. 1006 ¶ 502). If it does, Petitioner points out, processing continues down to the links associated with that node in the tree. *Id.* (citing 9:37–39). Petitioner asserts that Riddle’s examples of identifying child protocols include identifying the child protocol TCP in the IP protocol, and identifying the child protocols HTTP and FTP within the TCP protocol. *Id.* at 45–46 (citing Ex. 1008, 8:22–25, 8:38–42, 10:62–11:2, 11:48–63, 13:10–22; Figs. 1D, 2A, 2B, Table 1; Ex. 1006 ¶¶ 503–506).

Petitioner further asserts that “Baker teaches descriptions for layered protocols, including protocol descriptions identifying one or more child protocols at each of a plurality of layers in a packet.” *Id.* at 47 (citing Ex. 1013, code (57), 1:22–25, 2:1–7, 2:28–3:8; Ex. 1006 ¶ 510). According to Petitioner, Baker explains that “the protocol descriptions may take the form of one or more protocol description files for each supported network protocol and may include a protocol header record and plurality of field sub-records having data corresponding to an associated protocol and fields defined therein.” *Id.* (citing Ex. 1013, 4:35–5:3; Ex. 1006 ¶ 510).

With respect to reasons to combine the teachings of Riddle and Baker, Petitioner contends that “Riddle and Baker are in the same field of endeavor,” “contain overlapping disclosures with similar purposes,” and that a person of ordinary skill in the art would have understood the benefit to having Riddle’s classification system allow for updating protocol descriptions. *Id.* at 28–29 (citing Ex. 1008, 1:54–57, 4:6–17; Figs. 1A, 1D; Ex. 1013, 1:2–2:10, 3:32–4:6; Ex. 1006 ¶¶ 403–404, 472, 474). Specifically, Petitioner asserts that “[a]n express advantage of Riddle’s disclosure ‘is that network managers need not know the technical aspects of each kind of traffic in order to configure traffic classes.’” *Id.* at 28 (citing Ex. 1008, 15:37–40; Ex. 1006 ¶¶ 401, 474). Thus, Petitioner asserts that one of ordinary skill in the art would have been motivated to use Baker’s mechanism for parsing, filtering, generating and analyzing data using stored protocol description files in order to update the protocols used in Riddle’s classifications. *Id.* at 29.

Independent claim 10 also recites “the one or more locations in the packet where information is stored related to any child protocol of the particular protocol.” Ex. 1002, 96:40–42. Relying on its declarant, Petitioner asserts that Riddle discloses programming a system to look for information in a packet relating to the TCP child protocol of IP, and the FTP and HTTP child protocols of TCP, and that Riddle’s classification extends to examination of the data contained in the flow’s packets. Pet. 56 (citing Ex. 1008, 8:41–42, 11:48–49; Ex. 1006 ¶¶ 526–572).

Independent claim 10 also recites “if there is at least one protocol specific operation to be performed on the packet for the particular protocol at the particular layer level, the one or more protocol specific operations to

be performed on the packet for the particular protocol at the particular layer level.” Ex. 1002, 96:43–48. Petitioner asserts that the ’725 Patent acknowledges protocol specific operations may include parsing and extraction operations to extract identifying information. Pet. 57 (citing Ex. 1002, code (57), 2:21–31; Ex. 1006 ¶ 529). Relying on its declarant, Petitioner asserts that “Riddle discloses performing parsing and extraction operations to extract identifying information, and then checks at each level if the flow being classified matches the attributes of a given traffic class.” Pet. 58 (citing Ex. 1006 ¶ 530; Ex. 1008, Fig. 4A, 9:28–40). More specifically, relying on its declarant, Petitioner asserts that a person of ordinary skill in the art would have understood that Riddle has extracted identifying characteristics to perform steps 404 (“compare flow specification with existing classification tree”), 406 (“traffic matches a class?”), and 408 (“enter into a saved list characteristics of the traffic”). *Id.* at 59 (citing Ex. 1006 ¶ 531).

Independent claim 10 also recites “performing the protocol specific operations on the packet specified by the set of protocol descriptions based on the base protocol of the packet and the children of the protocols used in the packet.” Ex. 1002, 96:49–52. Petitioner asserts that Riddle discloses applying individual instances of traffic classification paradigms to packet network flows based on selectable information obtained from a plurality of layers of a multi-layered communication protocol in order to define a characteristic class, then mapping the flow to the defined traffic class. Pet. 61–62 (citing Ex. 1008, code (57), 4:10–15; Ex. 1006 ¶ 543).

Petitioner’s assertions are supported by the cited evidence and are persuasive. Patent Owner does not substantively address these assertions or

otherwise contend that the art lacks any of the above discussed features. *See generally* PO Resp. We are persuaded that Petitioner has shown by a preponderance of the evidence that they are taught by Riddle and Baker and adopt the contentions set forth in the Petition and in Dr. Weissman's Declaration as mapped to these undisputed limitations of claim 10 as our own findings. *See In re NuVasive, Inc.*, 841 F.3d 966, 974 (Fed. Cir. 2016) (explaining that the Board need not make specific findings about claim limitations that a patent owner does not dispute are disclosed in the prior art).

Lastly, independent claim 10 recites “wherein the protocol specific operations include one or more parsing and extraction operations on the packet to extract selected portions of the packet to form a function of the selected portions for identifying the packet as belonging to a conversational flow.” Ex. 1002, 96:53–57. Relying on its declarant, Petitioner asserts that Riddle discloses its parser forms a function of packet portions to identify the packet is part of a “conversational flow” in at least two ways: (a) classifying based on service aggregates and (b) classifying based on PointCast. Pet. 64 (citing Ex. 1006 ¶ 548). Regarding the former, Petitioner contends that “Riddle teaches identifying whether packets are part of ‘service aggregates,’ traffic classes linking separate connection flows based on the associated application,” and that “these ‘service aggregates’ meet the claimed ‘conversational flow.’” *Id.* (citing Ex. 1006 ¶¶ 549–552). Indeed, Petitioner contends, Riddle's claims 1 and 2 teach that the service aggregates are conversational flows. *Id.* at 64–65 (citing Ex. 1008, claim 1 (reciting “said network having any number of flows” and “parsing a packet into a first flow specification”), claim 2 (reciting “for at least a second flow having a second

flow specification, recognizing said second flow specification and said first flow specification to comprise together a service aggregate” and “associating said first flow specification and said second flow specification with a newly-created classification tree node, said newly-created classification tree type node having a first traffic specification corresponding to said first flow specification and a second traffic specification corresponding to said second flow specification”); Ex. 1006 ¶ 313).

Regarding “PointCast Traffic,” Petitioner contends that the provisional application, from which the ’725 patent claims priority and incorporates by reference, “specifies that identifying PointCast traffic is an example of identifying a ‘conversational flow.’” Pet. 70 (citing Ex. 1016, 7:16–25; Ex. 1006 ¶ 553). Because Riddle “creates a single traffic class for disjointed PointCast connection flows by searching headers for URLs that begin with ‘/FIDO-1/,’” Petitioner contends, “Riddle thus teaches identifying a conversational flow.” *Id.* at 70 (citing Ex. 1008, 11:57–12:9; Ex. 1006 ¶ 553). Indeed, Petitioner asserts, one of the inventors of the ’725 patent previously testified that creating a single flow to describe such disjointed flows is a type of conversational flow. *Id.* at 70–71 (citing Ex. 1068, 55:11–57:15; Ex. 1071 ¶ 4; Ex. 1072, 3). Finally, Petitioner contends, “Riddle teaches that one of its autoclassification processes identifies PointCast traffic using the outside service field of the class, . . . specifying that ‘[c]ertain traffic may be distinguished by a signature,’” and accordingly, based on Riddle’s teachings, a person of ordinary skill in the art “would have understood that Riddle extracts selected portions of a packet to form a signature” *Id.* (citing Ex. 1008, 11:50–53, 14:54–63, 15:28–31; Ex. 1006 ¶¶ 325, 547, 553–554).

Patent Owner contends that Riddle does not teach the recited conversation flow. PO Resp. 28–38. Patent Owner contends that Riddle classifies traffic into generic traffic classes, but does not perform any more granular analysis. *Id.* at 34. According to Patent Owner, Riddle has no need or ability to recognize whether a particular group of packets in one direction relate to another flow or may form part of a conversational flow implicating an activity, unlike the claims of the '725 patent “which require specific operations involving conversational flows.” *Id.* Further, according to Patent Owner, “just because Riddle discloses a traffic classification activity does not mean that it discloses or suggests the specific activity required in the '725 Patent, which is narrowly focused on conversational flows.” *Id.* at 35–36. Patent Owner contends, “Riddle combines flows based on the type of activity,” and “[a]t best, . . . combines flows of the same type into a traffic class,” whereas “the '725 Patent inventions recognize separate conversational flows even when these different flows are based on the same type of activity.” *Id.* at 36, 37. Still further, Patent Owner argues, “‘conversational flows’ include *bidirectional* exchanges of packets,” but “Riddle, however, expressly teaches that its traffic classes are limited to unidirectional traffic.” *Id.* at 38 (citing Ex. 1008, 8:50–53, 11:28–29, 13:57–59; Ex. 2061 ¶¶ 64 – 65, 83). According to Patent Owner, “[b]ecause Riddle’s traffic classes are unidirectional, they cannot satisfy the ‘conversational flow’ element required in every challenged claim.” *Id.*

In its Reply, Petitioner contends that Patent Owner’s arguments do not analyze Riddle under the Board’s construction of “conversational flows,” but instead under Patent Owner’s own incorrect construction. Reply 10–11. Regardless, Petitioner argues, Riddle discloses “conversational flows” even

under Patent Owner’s incorrect construction. *Id.* at 11. First, according to Petitioner, “Riddle specifies that its service aggregate ‘is provided for certain applications that use more than one connection in a *particular* conversation between *a client and a server*.’” *Id.* (citing Ex. 1008, 11:10–19). For example, “Riddle describes listing service aggregates based on their source and/or destination, e.g., ‘host1,’ where host1 can represent a client or a server[□] involved in an FTP flow.” *Id.* (citing Ex. 1008, 2:13–21, 7:12–21, 13:8–26, Fig. 1C; Ex. 1006 ¶¶ 311, 312). Further, Petitioner contends, “Riddle teaches defining a traffic class by URI-pattern (e.g., ‘/sales/*’) and by the specific client/server pair involved (e.g., from ‘client Z’ to ‘server Y’).” *Id.* at 12 (citing Ex. 1008, 8:58–9:11; Pet. 63–64, 90).

In response to Patent Owner’s contention that Riddle classifies inbound and outbound flows only separately, not bidirectionally, Petitioner contends that Riddle in fact discloses that all traffic in a particular conversation between a client and a service is classified into a single service aggregate. Reply 12–13 (citing Ex. 1008, 11:12–15; Pet. 64–66). Petitioner cites, for example, disclosure in Riddle that the service aggregate for an FTP session contains “each conversation” between the client and server for the session, which Petitioner argues refers to all packets exchanged in either direction. *Id.* at 12–13 (citing Ex. 1008, 11:13–19, 12:1–12, 13:54–59; Pet. 66). Still further, Petitioner argues that “Riddle isn’t limited to flow classification based on port or server identity,” but discloses, for example, that “flow classification can use port numbers and can further ‘extend to examination of the data contained in a flow’s packets’ via signature-based analysis” and that “Telnet traffic’s multi-packet ‘option negotiations’ ‘may

indicate an appropriate class,’ an example of classification from exchanged data, not port number.” *Id.* at 13–14 (citing Ex. 1008, 11:50–53, 11:66–67).

In the Sur-Reply, Patent Owner argues again that Riddle fails to disclose “conversational flows,” contending that Riddle does not classify activities based on a particular client, that Riddle categorizes inbound and outbound traffic separately, and that Riddle fails to distinguish between different activities of the same type. Sur-Reply 13–16. First, according to Patent Owner, Petitioner’s contention that a service aggregate can distinguish between the same type of activity between different clients (Reply 11–12) “hinges on an extrapolation of how a single connection example is classified that is not supported by the rest of the specification.” Sur-Reply 14. According to Patent Owner:

In Riddle, service aggregates are a “common traffic class” that are “created with a plurality of traffic specifications.” EX1008 at 11:15–23. Riddle notes “[a] traffic class is broadly defined as traffic between *one or more clients* and *one or more servers*.” *Id.* at 8:48–49, 14:18–20 (“[A]nother method of identifying an individual traffic class is to detect simultaneous connections to the same host port from different clients.”). Thus, Riddle does not classify traffic per user, but by the type of traffic based on properties such as the ports being used. This understanding reflects Riddle’s stated purpose—bandwidth management.

Petitioner also suggests that, because a traffic class can be defined in terms of a specific source or destination IP address, that Riddle discloses “classifying traffic into client-specific conversational flows.” Reply at 11-12 (citing Riddle at 8:58-9:11, 10:1-17). That is incorrect. A rule written specifically for a client’s IP address would not distinguish one client activity from another; it would simply aggregate all traffic for that client. Defining a traffic class in terms of a specific source or destination address is an implementation of the conventional technique of matching one or more parts of a

5-tuple—but not a conversational flow. PO [Resp.] 6, 18–19;
EX2061 ¶¶62–65, 81–83.

Id. at 14–15. Further, Patent Owner argues, “Riddle expressly teaches that its traffic classes are limited to unidirectional traffic, and that service aggregates are traffic classes.” *Id.* at 15.

As an initial matter, for the reasons set forth in Section III.B above, we conclude that the term “conversational flow” is not client- or user-specific. Further, notwithstanding Patent Owner’s arguments that Riddle is concerned with bandwidth management rather than network monitoring (*see* PO Resp. 34; Sur-reply 13–14), obviousness does not require that the prior art address the same problem identified by the patent. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007) (“[N]either the particular motivation nor the avowed purpose of the patentee controls What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid.”); *Outdry Techs. Corp. v. Geox S.p.A.*, 859 F.3d 1364, 1371 (Fed. Cir. 2017) (“The motivation supported by the record . . . need not be the same motivation articulated in the patent.”).

Further, contrary to Patent Owner’s contentions (PO Resp. 38; Sur-Reply 16), neither the Board’s construction of “conversational flow” nor Patent Owner’s proposed construction *requires* “bidirectional” exchanges of packets (*see supra* § III.B; PO Resp. 22–25). Both the Board’s adopted construction and Patent Owner’s proposed construction recite, *inter alia*, “the sequence of packets that are exchanged *in any direction* as a result of an activity.” *Supra* § III.B (emphasis added); PO Resp. 22–25. The phrase “in any direction” is not limited to bidirectional packet flows but also encompasses unidirectional flows. As Petitioner points out, this

interpretation is consistent with the testimony of Patent Owner's declarant, Ms. Cathleen Quigley, stating that conversational flows "can," rather than "must," include bidirectional exchanges. Ex. 2061 ¶ 83 (cited in Reply 12 n.41). Regardless, we further agree with Petitioner that Riddle's disclosure that all traffic in a particular conversation between a client and a server is classified into a single service aggregate teaches bidirectional exchange. Reply 12–13 (citing Ex. 1008, 11:12–19, 12:1–12, 13:54–59); *see also* Pet. 67 (mapping Riddle's service aggregates to the claimed conversational flows and stating that Riddle's "Table 3 specifies detecting services in 'both directions'").

Based on the complete record, we are persuaded by Petitioner's explanations and supporting evidence with respect to independent claim 10. In light of the full record, we find that Petitioner has demonstrated by a preponderance of the evidence that claim 10 would have been obvious over the teachings of Riddle and Baker.

4. Dependent Claims 12, 13, and 16

Petitioner contends that dependent claims 12, 13, and 16 of the '725 patent are obvious over Riddle and Baker. Pet. 77–80. Claim 12 directly depends from independent claim 10 and recites "protocol specific operations are performed is step (c) depends on the contents of the packet such that the method adapts to different protocols according to the contents of the packet." Ex. 1002, 96:61–65. Relying on its declarant, Petitioner asserts that Riddle discloses that the state operations depend on the contents of the packet and therefore the method adapts to different protocols according to the contents of the packet. Pet. 77–78 (citing Ex. 1006 ¶¶ 583–584). According to Petitioner, examples of state processing operations disclosed

by Riddle include searching for patterns/referencing strings, creating a new flow-entry for future packets to be identified with the flow, performing state operations related to “service aggregates,” determining metrics, and updating flow entries. *Id.* (citing Ex. 1006 ¶¶ 583–584).

Claim 13 also directly depends from independent claim 10, and recites “wherein the protocol descriptions are provided in a protocol description language.” Ex. 1002, 96:66–67. Petitioner asserts that Baker discloses that the protocol descriptions are contained in “protocol description files (PDF)” which include a protocol control record and a plurality of field data records. Pet. 79 (citing Ex. 1013, 19:6–10).

Claim 16 also directly depends from independent claim 10, and recites “wherein the protocol specific operations further include one or more state processing operations that are a function of the state of the flow of the packet.” Ex. 1002, 97:37–39. Relying on its declarant, Petitioner contends that Riddle determines the state of the flow, at least, by determining metrics such as accounting for duplicates, most recent time encountering traffic with the same identifying characteristics, and byte count. Pet. 75, 80 (citing Ex. 1008, 12:53–13:8, 13:36–14:5, Figs. 4A, 4B; Ex. 1006 ¶¶ 568, 597, 598).

Based on the complete record, we are persuaded by Petitioner’s explanations and supporting evidence with respect to dependent claims 12, 13, and 16. Patent Owner does not address separately Petitioner’s explanations and supporting evidence as to how the teachings of Riddle and Baker account for the limitations of these dependent claims. *See generally* PO Resp. We are persuaded that Petitioner has shown by a preponderance of the evidence that claims 12, 13, and 16 would have been obvious over

Riddle and Baker and adopt the contentions set forth in the Petition and in Dr. Weissman's Declaration as mapped to these undisputed limitations of these claims as our own findings.

5. Independent Claim 17

Claim 17 is identical to claim 10 in most respects. *Compare* Ex. 1002, 96:24–57, *with id.* at 98:1–37. Claim 17, however, differs from claim 10 as to the final wherein clause. Claim 17's final wherein clause recites

wherein the packet belongs to a conversational flow of packets having a set of one or more states, and wherein the protocol specific operations include one or more state processing operations that are a function of the state of the conversational flow of the packet, the state of the conversational flow of the packet being indicative of the sequence of any previously encountered packets of the same conversational flow as the packet.

Id. at 98:30–37.

Petitioner argues that Riddle teaches “that these conversational flows have one or more states . . . and that classification includes performing one or more state processing operations that are indicative of any previously encountered packets for the same conversational flow.” Pet. 72 (citing Ex. 1008, 9:20–22, 11:10–23, 11:48–67, 13:10–22, 14:63; Ex. 1006 ¶¶ 553–556). Dr. Weissman supports Petitioner's argument by testifying that “Riddle discloses keeping track of when traffic with the same identifying characteristics was last encountered.” Ex. 1006 ¶ 556 (citing Ex. 1008, 12:56–57).

Patent Owner disputes Petitioner's description of Riddle's teachings and asserts, “Riddle relates to classifying traffic based on an individual packet in the flow, rather than on a state of the flow (i.e., evaluation across

multiple packets).” PO Resp. 46. According to Patent Owner, the passages from Riddle relied upon by Petitioner perform analysis “solely on an individual packet’s information and ‘multiple orthogonal classification attributes.’” *Id.* (citing Ex. 1008, Fig. 2A, 9:16–18, 9:20–25, 10:20–39). As such, Patent Owner contends that “Riddle has no concept of ‘state of the flow.’” *Id.* at 48. Finally, Patent Owner asserts that the Board has already rejected such arguments regarding Riddle in the context of a related case. *Id.* (citing IPR2020-00335, Paper 19 at 19–20 (PTAB Aug. 27, 2020)).

Petitioner responds that Riddle teaches

receiv[ing] an FTP packet of an FTP flow (“a packet belong[ing] to a conversational flow of packets”). If the packet is for a new flow (i.e., a flow in an initial state), Riddle creates a new flow entry and new service aggregate (“one or more state processing operations that are a function of the state of the conversational flow of the packet”), which indicate that there were no previously encountered packets of the conversational flow of the received packet (“the state of the conversational flow of the packet being indicative of the sequence of any previously encountered packets of the same conversational flow as the packet”).

Reply 15–16 (citing Pet. 72–73). Petitioner argues that these disclosures are sufficient to teach the disputed limitation of claim 17 and that Patent Owner’s arguments fail because they focus only on its assertion that Riddle does not teach the state limitations in the context of an existing flow. *Id.* at 16. Further, Petitioner contends that Patent Owner is incorrect and that Riddle also teaches the state limitations in the context of an existing flow. *Id.* Specifically, Petitioner asserts that “Riddle will identify subsequent packets in that same session, including the time of occurrence of those packets, and the identifying characteristics of each packet is entered into a saved list, thereby indicating the sequence.” *Id.* In addition, Riddle

performs the recited state operations in that “Riddle will ‘suppress duplicates’ and ‘keep’ a ‘count of the duplicates’ and ‘most recent time’ duplicate traffic was encountered.” *Id.* at 17 (citing Ex. 1008, 12:53–13:8, 14:1–5, Fig. 4A). According to Petitioner, Riddle’s disclosures are not limited to the analysis of individual packets and “Riddle classifies service aggregates based on a plurality of indicators across multiple packets.” *Id.* (citing Ex. 1008, Fig. 4B, claim 5; Ex. 1006 ¶¶ 353, 356–357, 531, 544). Finally, Petitioner notes that the prior Board decision is not applicable here because the claim at issue is very different from the claim in the previous decision because that case dealt with “state transition patterns as a result of . . . a sequence of packets” and the instant claim merely requires “having a state that is merely *indicative of any* previously encountered packets of the same conversational flow.” *Id.* at 14.

Patent Owner argues that Riddle’s disclosures are insufficient. Sur-Reply 19–21. Riddle may well “record identifying characteristics,” but Patent Owner posits that there is no evidence that these characteristics “somehow must also contain a state of the conversational flow that indicates the sequence of any previously encountered packets of the same conversational flow.” *Id.* at 20. In addition, Patent Owner argues that Petitioner’s assertions ignore many of the state based limitations found in claim 17. *Id.* Finally, Patent Owner reiterates its position that “Riddle’s analysis and categorization of packets turns solely on an individual packet’s information and ‘multiple orthogonal classification attributes.’” *Id.* at 21.

We are persuaded by Petitioner’s arguments. As to the prior Board decision, we note that the claim language is significantly different in IPR2020-00335 and as such, requires a different analysis than would have

been previously before the Board. For example, in IPR2020-00335, the language in dispute concerned multiple packets for classifying a flow as being associated with the operation of a particular application program. *See Juniper Networks, Inc. v. Packet Intelligence LLC*, IPR2020-00335, Paper 19 at 14 (PTAB Aug. 27, 2020); *see also* Ex. 1001, 35:31–39 (reciting the disputed limitation of claim 1). And our findings in IPR2020-00335 about Riddle’s teachings related to that language, and not the claim language in dispute here. *See Juniper Networks*, Paper 19 at 14–22.

As to Petitioner’s other arguments, we are persuaded that Riddle is broad enough to teach examination of multiple packets and not just individual packet determinations. Riddle states that “classification can extend to examination of the data contained in a flow’s *packets*.” Ex. 1008, 11:48–50 (emphasis added). The process of classifying traffic can include a step in which “duplicate instances having the same identifying characteristics are suppressed, in favor of keeping a count of the duplicates and a most recent time traffic with these identifying characteristics was encountered.” *Id.* at 12:56–57. In order to ascertain duplicates the system must keep information beyond that of a single packet. We also find persuasive Petitioner’s discussion of Riddle’s disclosure of state in the context of a new flow and we adopt that analysis. *See* Reply 15–16. In particular, we note Petitioner’s argument that Riddle’s handling of a new flow teaches “the state of the conversational flow of the packet being indicative of the sequence of any previously encountered packets of the same conversational flow as the packet.” *Id.* We agree with Petitioner’s assertion that Riddle’s creation of a new flow “indicate[s] that there were no previously encountered packets of the conversational flow of the received

packet.” *Id.* We are persuaded by Petitioner’s arguments that determining that there were no previous packets of that flow teaches an indication of the state of that flow. As to existing flows, Petitioner persuasively argues that

if the first packet of the new flow is for a TCPcmd session, Riddle will identify subsequent packets in that same session, including the time of occurrence of those packets, and the identifying characteristics of each packet is entered into a saved list, thereby indicating the sequence. And upon receiving packets for a corresponding TCP-data session, Riddle records their identifying characteristics, including time of occurrence, again indicating sequence.

Id. at 16; *see* Ex. 1005, 12:42–53 (discussing step 406, which determines whether traffic matches one of the classes being classified and step 408, which makes an entry on a list of identifying characteristics if the traffic class matches an existing class). Thus, for these reasons and the reasons discussed above in the context of claim 10, we are persuaded that Petitioner has shown by a preponderance of the evidence that claim 17 would have been obvious over Riddle and Baker.

D. Obviousness over Riddle, Baker, and Yu and over Riddle, Baker, and RFC1945

Petitioner alleges that the challenged claims are also unpatentable as obvious over Riddle, Baker, and Yu and over Riddle, Baker, and RFC1945. Pet. 80–96. Having determined that Petitioner establishes by a preponderance of the evidence that the subject matter of each of the challenged claims would have been obvious over the combination of Riddle and Baker, we need not address Petitioner’s additional grounds challenging these claims. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*,

IPR2020-00336
Patent 6,665,725 B1

809 F. App'x 984, 990 (Fed. Cir. 2020) (nonprecedential) (“We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.”).

III. CONCLUSION¹⁰

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties' respective arguments, Petitioner has shown by a preponderance of the evidence that each of claims 1, 10, 12, 13, and 16 of the '725 patent is unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)	Claims Shown Unpatentable	Claims Not Shown Unpatentable
10, 12, 13, 16, 17	103(a)	Riddle, Baker	10, 12, 13, 16, 17	
10, 12, 13, 16, 17	103(a)	Riddle, Baker, Yu ¹¹		
10, 12, 13, 16, 17	103(a)	Riddle, Baker, RFC1945		
Overall Outcome			10, 12, 13, 16, 17	

¹⁰ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

¹¹ As explained above, in light of our determination of unpatentability, we decline to address whether claims 10, 12, 13, 16, 17 are unpatentable as obvious over Riddle, Baker, and Yu or Riddle, Baker, and RFC1945.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has established by a preponderance of the evidence that claims 10, 12, 13, 16, and 17 of the '725 patent are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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