

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETGEAR, INC.,
Petitioner,

v.

WSOU INVESTMENTS, LLC, d/b/a BRAZOS LICENSING AND
DEVELOPMENT
Patent Owner.

IPR2022-00606
Patent 7,551,630 B2

Before THU A. DANG, BRIAN J. McNAMARA, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* McNAMARA.

Concurring Opinion filed by *Administrative Patent Judge* McNAMARA.

McNAMARA, *Administrative Patent Judge*.

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

I. BACKGROUND

In response to a Petition (“Pet.”), on October 17, 2022, we instituted an *inter partes* review of claims 1–4, 6, 10, and 12 of U.S. Patent No. 7,551,630 B2 (Ex. 1001, “the ’630 Patent”). Paper 7 (“Dec. to Inst.”). Patent Owner filed a Patent Owner Response (Paper 15, “PO Resp.”), Petitioner filed a Petitioner Reply (Paper 16, “Pet. Reply”) and Patent Owner filed a Sur-reply (Paper 18, “Sur-reply”). A transcript of an oral hearing held on July 25, 2023 (Paper 20, “Hr’g Tr.”) has been entered into the record.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). We base our decision on the preponderance of the evidence standard. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

Having reviewed the arguments of the parties and the supporting evidence, we conclude that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims are unpatentable.

II. THE ’630 PATENT

The ’630 patent states that known routers in telecommunication networks receive from a plurality of inputs two kinds of packet traffic: (i) transit traffic, i.e., data packets that do not leave the forwarding path, and (ii) control traffic packets, i.e., control packets that comprise the control data required to create a required forwarding path. Ex. 1001, 1:3–16. The ’630 patent concerns only control packets (also called “packets” in the ’630 patent)¹ that are routed to a common processor according to a specific

¹ In the ’630 patent, packets that are not control packets are identified explicitly. Ex. 1001, 1:22–24.

protocol, e.g., the Border Gateway Protocol (“BGP”), the Protocol Independent Multicast (“PIM”) protocol, the Open Shortest Path First (“OSPF”) Protocol, or the Label Distribution Protocol (“LDP”). *Id.* at 1:16–32; Fig. 1 (showing multiple inputs and a common processor). The ’630 patent does not discuss mechanisms for distinguishing control packets from data packets, where such distinctions are determined, what constitutes the forwarding path, or how data packets proceed on the forwarding path.

The ’630 patent states that, in known systems, control packets are received at different inputs at a receiving rate and that, when the receiving rate exceeds a predefined threshold, control packets need to be dropped because the processing rate of the common processor may be exceeded. *Id.* at 1:33–40. The ’630 patent also states that in a “prior art solution, a buffer that is coupled to the different inputs is used to buffer the received [control] packets.” *Id.* at 1:42–44. According to the ’630 patent, in conventional systems the part of a data path that includes the common processor and its associated buffer is called a common control point. *Id.* at 1:45–47. Packets are dropped when the buffer exceeds a threshold or at the common control point itself when the receiving rate exceeds the threshold until the common processor again is able to follow the receiving rate. *Id.* at 1:57–62.

According to the ’630 patent, because packets are dropped regardless of their content, the common control point protects the common processor from too high a load, but “doesn’t guarantee that only packets from the violating stream are throttled.” *Id.* at 1:63–2:1. As a result, “dropping packets randomly impacts streams running at a very low rate, such as keep-alive traffic,” causing applications to interpret some services from remote peers as timed out. *Id.* at 2:1–7.

M_BGP (for packets using the BGP protocol), M_PIM (for packets using the PIM protocol), and M_PROTn (indicating a protocol in general). *Id.* at 3:62–64, 1:31–32. Inputs coupled to the same network processor are divided into subsets according to a set of markers, e.g., a first subset of inputs (IN11, IN12, IN13) is associated with a first set of markers M11(M_BGP, M11(M_PIM) . . . M11(M_PROTn) in marking set M11. *Id.* at 4:15–22. Similarly, another subset (a first plurality of inputs, e.g., IN14, IN15, IN16, and IN17) associated with marking set M12 and the same protocol, e.g., M12(M_PIM), is to be used by common processor CP, such that marker M12(M_PIM) is uniquely associated with the stream of packets received via one of inputs IN14, IN15, IN16, IN17, where the PIM protocol is used by the common processor CP. *Id.* at 4:23–34.

The marker marks incoming control packets according to a receiving rate of control packets that are received at a subset of inputs and are processed by a particular routing protocol. *Id.* at 4:19–22. Packets can be marked by color codes, e.g., green if no excess traffic, yellow if minor excess traffic, and red if highly excess traffic. *Id.* at 4:32–47. One embodiment includes a dropper (also called a discarder; not shown) at the ingress level that drops excess red control packets and forwards green and yellow packets to the common control point (common processor). *Id.* at 5:11–46. At the common control point, common processor CP includes discarder DIS that executes a discarding algorithm and, based on the marking and predefined rules and conditions, discards certain control packets before the common processor processes them. *Id.* at 5:26–42, Fig. 1.

The '630 patent further explains that “[t]he aim of the present invention is the co-operation between the ingress i.e., different subset of inputs and the common control point, i.e., the discarding at the common

processor.” *Id.* at 3:4–7. “[A] stream of control packets which are taken into account for keeping track of the same receiving rate of control packets, is defined as a packet flow belonging to the same protocol and the same subset of incoming packet interfaces, i.e., inputs.” *Id.* at 2:66–3:3, 4:24–29. According to the ’630 patent, when two control packets received at one of the inputs of an input subset are to be processed according to different protocols, one control packet is counted to keep track of the receiving rate for the first protocol and the other control packet is counted to keep track of the receiving rate for the second protocol. *Id.* at 2:48–60. When two control packets to be processed by common processor under the same protocol are received at inputs of different subsets, both packets are counted to keep track of the different receiving rates of the control packets. *Id.* at 2:61–66.

III. ILLUSTRATIVE CLAIM

Apparatus claim 1, reproduced below with the paragraph designations used in the Petition, is illustrative of the subject matter claimed in the ’630 patent.

1[pre]. A router for routing packets in a telecommunication network, said router comprises

[a] a plurality of inputs for receiving said packets and a common processor (CP) coupled to said plurality of inputs for processing at least part of said packets according to one or more routing protocols,

[b] wherein said router comprises at least one packet marker (M11(M_BGP)), coupled between a first plurality of inputs (IN11, IN12, IN13) of said plurality of inputs and said common processor (CP), for marking incoming control packets of said at least part of said packets, according to a receiving rate of control packets received at said first plurality of inputs (IN11, IN12, IN13) and to be processed according to a first routing protocol, said incoming control packets being received at one of said first plurality of inputs (IN11, IN12, IN13) and to be processed

according to said first routing protocol, said marker (M11(M_BGP)) provides thereby marked control packets; and [c] said common processor (CP) comprises a discarder (DIS) for discarding, before said processing, one or more of said marked control packets according to said marking and according to predefined rules and conditions.

Ex. 1001, 6:23–42.

IV. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner describes a person of ordinary skill (or “ordinarily skilled artisan” or “POSITA”) as having “a bachelor’s degree in electrical engineering (or a similar degree) and 1-2 years working in the design or development of routers, or the equivalent.” Pet. 8–9 (citing Ex. 1003, Declaration of Dr. Robert Akl (“Akl Decl.”) ¶ 19). Petitioner notes that “[a]dditional graduate education could substitute for professional experience, and vice versa, significant experience in the field could substitute for formal education.” *Id.* Patent Owner does not offer a competing definition of a person of ordinary skill. Paper 6 (“Prelim. Resp.”), 1–2.

The level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

As the subject matter of the ’630 patent is commensurate with Petitioner’s description of an ordinarily skilled artisan, we apply Petitioner’s definition for purposes of this Decision.

V. GROUNDS OF INSTITUTION

Trial was instituted on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–4, 6, 10, 12	102(a) ²	Everdingen ³
1–4, 6, 10, 12	103(a)	Everdingen
1–4, 6, 10, 12	102(a)	Gouriellec ⁴
1–4, 6, 10, 12	103(a)	Gouriellec

In support of its challenges, Petitioner cites the direct testimony of Dr. Robert Akl. Ex. 1003, Akl. Decl. Patent Owner did not cross-examine Dr. Akl. Patent Owner does not present testimonial evidence in opposition to Petitioner’s challenges.

VI. CLAIM CONSTRUCTION

Neither the Petition nor the Patent Owner Response included proposed constructions for any term or limitation. *See* Pet. 14 (applying the plain and ordinary meaning of each term); PO Resp. 1–2 (applying the plain and ordinary meaning, but arguing Petitioner advances incorrect theories that fail to give meaningful effect to each claim term). Nevertheless, the parties put forth certain arguments regarding claim construction that we will now address.

A. “*marking incoming control packets . . . according to a receiving rate of control packets*” (part of Claim Limitation 1.b)

Claim limitation 1.b recites, *inter alia*, “marking incoming control packets . . . according to a receiving rate of control packets.” Patent Owner contends that this portion of claim limitation 1.b means that incoming

² We apply the per-AIA provisions of the statute, as the application for the ’630 patent was filed before March 16, 2013.

³ U.S. Patent Publication No. 2002/0031091 to Michiel van Everdingen, “Method and a Device for Controlling Source Specific Data Flow,” filed August 31, 2001 (“Everdingen”) (Ex. 1004).

⁴ U.S. Patent No. 7,133,360 to Louis Le Gouriellec et al., “Conditional Bandwidth Subscriptions for Multiprotocol Label Switching (MPLS) Label Switched Paths (LSPS),” filed May 7, 2002 (“Gouriellec”) (Ex. 1005).

packets to be marked must meet three criteria, i.e., “(1) they must all be ‘control packets’ (i.e., a particular *type* of packet), (2) they must all be ‘received at said first plurality of inputs’ and (3) they include only those that are ‘to be processed according to a first routing protocol.’” Sur-reply 1 (citing PO Resp. 5–6; Ex. 1001, 6:31–37, 6:50–55) (brackets omitted); *see also* PO Resp. 10–11. Petitioner’s expert Dr. Akl generally agrees that in the ’630 patent “[t]he marking is defined in function of the receiving rate of control packets being received at an identical subset of inputs and being to be processed by the common processor according to an identical protocol.” Ex. 1003, Akl Decl. ¶ 73 (citing Ex. 1001, 2:48–51, 2:66–3:3). Given this general agreement between the parties, we adopt Patent Owner’s three criteria for “marking incoming control packets . . . according to a receiving rate of control packets.”

Notwithstanding the parties’ apparent agreement on the issues discussed above, according to Patent Owner, Petitioner advanced a new claim construction position in the Petitioner Reply, namely that this limitation is “satisfied by indiscriminately marking according to a receiving rate of *all* packets, regardless of whether each one of the ‘incoming packets’ is a ‘control packet’ satisfying all the criteria expressly set forth in the claim language.” Sur-reply 2 (citing Pet. 21; Ex. 1003, Akl Decl. ¶ 75). Although Patent Owner cites arguments presented on page 21 of the Petition, Patent Owner argues Petitioner’s Reply advances a new argument because it argues “that ‘control packet’ should be construed to mean ‘the header portion of a packet that can also include user data (a ‘data packet’).” *Id.* (citing Pet. Reply 7). According to Patent Owner “under Petitioner’s new and shifted interpretation ‘control packet’ refers to the header portion/part of any kind of packet, including data packets.” *Id.*

We do not agree with Patent Owner’s arguments. Even if Petitioner’s arguments were new—which they are not (*see, e.g.*, Pet. 20–21; Dec. to Inst. 16–19)—we adopt Patent Owner’s three criteria for “marking incoming control packets . . . according to a receiving rate of control packets,” as mentioned above. We further note that Patent Owner’s arguments implicate the proper construction of “control packet,” which we discuss in greater detail directly below. *See* Section VI.B herein.

B. “control packet”

The dispute between the parties appears to center on what constitutes a “control packet” in the ’630 patent and whether the claims’ recitation of marking control packets excludes marking packets that are not called “control packets.” In the Patent Owner Response and at the oral hearing, Patent Owner argues that “marking incoming control packets” as claimed “plainly requires differentiating qualifying ‘control packets’ from among other types of incoming packets in order to selectively mark incoming ‘control packets’ according the specific rate they are received.” PO Resp. 8; Hr’g Tr. 21:24–26. Patent Owner does not identify where the ’630 patent describes mechanisms for differentiating control packets from other types of packets. *See* PO Resp. 8; Hr’g Tr. 21:24–26. The ’630 patent states only that it is not concerned with “data packets.” *See* Ex. 1001, 1:18–20.

Although neither party proposed a construction of the specific term “control packet,” during the oral hearing both parties often referred to the lexicography of the ’630 patent. *See, e.g.*, Hr’g Tr. 15:13–16:22, 23:6–19, 29:23–25, 35:36–11, 38:9–40:16, 49:2–50:8. For example, Petitioner argued that the ’630 patent employs lexicography different from the lexicography used in the references. *Id.* at 15:12–16:22.

The '630 patent states that “only these [control] packets are to be routed from the different inputs to the common processor in order to be processed by this common processor,” but “a data packet only has to follow the forwarding data-path.” Ex. 1001, 1:16–24; Ex. 1003, Akl Decl. ¶ 72. The '630 patent does not state explicitly that control packets do not follow the forwarding path. Petitioner’s witness, Dr. Akl, generally agrees with Patent Owner that the '630 patent states “control packets comprise the required control data to create the required forwarding path,” a point emphasized repeatedly by Patent Owner at the oral hearing. Ex. 1003, Akl Decl. ¶ 72 (internal quotations omitted); *see, e.g.*, Hr’g Tr. 27:3–7, 28:19–20. The '630 patent, however, does not describe “the required control data to create the required forwarding path,” and does not state where in the packet the required control data is to be found, notwithstanding that the '630 patent defines a control packet as including such control data.

Patent Owner states that, based on claim differentiation in the '630 patent, “not every packet that comes into a router is properly considered a control packet just because it is processed by the router.” Hr’g Tr. 33:8–10; Sur-reply 3–4 (citing claim differentiation between claim 1 and dependent claims 6 and 12). Patent Owner’s claim differentiation arguments are unavailing. Dependent claims 6 and 12 recite that “each control packet belongs to a packet stream wherein said packet marker designates a receiving rate of the packet stream to which said control packet belongs.” *See* Ex. 1001, 7:10–13, 8:9–12. According to Patent Owner, “the expressly differentiated assessment of *both* ‘a receiving rate of control packet’ meeting certain criteria *and* ‘a receiving rate of the packet stream’ in general thereby confirm[s] those separately-recited rates are not properly interpreted as being and the same.” Sur-reply 4 (citing Pet. Reply 8–9). Patent Owner further

states “[a]ccordingly, the unrebutted legal presumption here strongly counsels against interpreting *discriminately* marking according to a receiving rate of qualifying control packets to mean *indiscriminately* marking according to a receiving rate of all incoming packets with a header portion.” *Id.*

It is not clear how claims 6 and 12 differentiate claim 1, based on Patent Owner’s assertion that this recitation in claim 1 is limited to marking control packets associated with an input and a protocol. As claims 6 and 12 state that each control packet belongs to a stream and the packet marker designates the receiving rate of the stream to which the control packet belongs, claims 6 and 12 indicate that all packets in the recited stream are control packets. The Specification defines a “stream” of packets, not as all packets received indiscriminately by the router, as Patent Owner suggests, but all packets, i.e., control packets using the ’630 patent’s nomenclature, received by the router (a) via one subset or plurality of inputs and (b) processed by the common processor using the same routing protocol. Ex. 1001, 4:23–29.

During the oral hearing, Petitioner stated “the destination of whether it’s going to the processor is definitive on whether the packet is a control packet for purposes of the ’630 Patent.” Hr’g Tr. 10:2–4. We agree with Patent Owner that, to the extent Petitioner characterizes control packets merely as packets whose destination is the common processor (Hr’g Tr. 9:20–10:4), such a definition is not consistent with the ’630 Specification. The ’630 patent does not preclude the common processor from being in the forwarding path and does not state that data packets cannot be routed to the common processor. The ’630 packet states only that data packets “are not

leaving the forwarding path” (although the ’630 patent does not describe or define the forwarding path). *See* Ex. 1001, 1:11–13.

Noting that the ’630 patent contrasts a control packet with “a data packet that only has to follow the forwarding data-path,” Dr. Akl points out, “the ’630 patent distinguishes data packet type by functionality.” Ex. 1003, Akl Decl. ¶ 72 (citing Ex. 1001, 1:14–16, 1:22–24). According to Dr. Akl, “[a] POSITA understands that a control packet is also referred to as a ‘header packet’” because “when a router determines where to send a packet, it generally analyzes the packets.” *Id.* (citing Ex. 1008, 4⁵ (“each router makes an independent forwarding decision for that packet . . . each router analyzes a packet’s header and runs a network layer routing algorithm”); *see also id.* (distinguishing “conventional IP forwarding,” in which “[a]s the packet traverses a network, each hop in turn reexamines the packet and assigns it a FEC (Forward Equivalence Class)” from Multiprotocol Label Switching (MPLS), in which “[a]t subsequent hops, there is no further analysis of the packet’s network layer header” and “all forwarding is driven by the labels.”); Pet. 20–21.

We agree that the distinction between a data packet and a control packet in the ’630 patent is based on functionality—the ’630 patent does not describe or otherwise limit the structure of either a control packet or a data packet. The ’630 patent’s description of a data packet does not preclude a data packet from having a header with control information and does not preclude a control packet from having data. One distinction drawn in the ’630 patent is that a control packet is routed to a common processor “in

⁵ RFC 3031, “Multiprotocol Label Switching Architecture,” dated January 2001 (“RFC 3031”) (Ex. 1008, “MPLS”)

order to be processed by this common processor” and a data packet is one that is not leaving (or “only has to follow”) the forwarding data-path.

Ex. 1001, 1:10–24. The ’630 patent is silent as to how a data packet remains on or follows the forwarding path or how the forwarding path is determined by the router. For example, the ’630 patent does not state whether a data packet remains on the forwarding path by passing through the common processor without further processing, or by some other mechanism, e.g., a path that does not include the common processor. Control packet marking occurs before the packets reach the common processor. *Id.* at Fig. 1. Except for its discussion of a packet discarder, the ’630 patent does not describe how the common processor processes control packets or how the control data required to create the forward path is processed. The ’630 patent Specification provides no other disclosure about the structure or characteristics of control packets or data packets.

As the ’630 patent provides no reference to an industry-standard use of the terms “control packet” and “data packet,” we cannot determine from the ’630 patent whether there is a plain and ordinary meaning of the terms “control packet” and “data packet.” The record also does not provide sufficient information to determine the plain and ordinary meaning of “control packet” to an ordinarily skilled artisan. For example, Petitioner’s reference to Nandy as describing a control packet is not determinative. Pet. 20–21 (citing Ex. 1007, code (57), 2:52–54), Hr’g Tr. 14:26–15:2. Nandy describes a control packet as one that functions as a sensor, i.e., as a header packet injected into a network at an edge router to sense congestion along the path of aggregated data, such that the loss of a control packet slows the transmission of data. Ex. 1007, 5:22–30, 5:57–6:2, 7:7–18. Patent Owner acknowledges that packets can contain headers with control information, but

argues “[t]hat’s not how the 630 Patent defines control packet” because by defining a control packet that broadly “there would be no basis by which you could distinguish the control packet from a data packet.” Hr’g Tr. 22:24–23:5, 40:4–16 (arguing that if information in a packet that routes the packet correctly is sufficient to qualify a packet as a control packet, “it would vitiate this specific limiting lexicography and render every packet that a router receives as control packet which is not consistent with the intrinsic evidence.”). According to Patent Owner, in the ’630 patent a control packet is “not a packet containing information to route a packet, it is a packet used to create the forwarding path, bring into existence the forwarding path.”).

As discussed above, the ’630 patent does not describe the “required control data required to create the forwarding path” that characterizes a control packet, does not describe the “forwarding path” that data packets “do not leave,” does not preclude the forwarding path from including the common processor to which control packets are routed, does not describe how the forwarding path is determined, does not describe the processing of control packets that takes place at the common processor (except for marking the packets), does not describe a mechanism for distinguishing control packets from data packets, and does not preclude marking data packets. Based on the record, to a person of ordinary skill, the meaning of and practical significance of the ’630 patent’s distinction between a “control packet” and a “data packet” beyond the confines of the ’630 patent is not clear.

All that can be said, based on ’630 patent’s description, is that the claimed “control packets” have the following characteristics: (1) they are packets that “are to be routed from the different inputs to the common

processor,” (2) “in order to be processed by this common processor,”⁶ and (3) “comprise the required control data to create the required forwarding path⁷ and might possibly be adapted.”⁸ Ex. 1001, 1:13–22. Therefore, we construe a “control packet” to be a packet with these three characteristics.

VII. LEGAL PRINCIPLES

“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 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner except in limited circumstances not present here. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

Anticipation is a question of fact, as is the question of what a prior art reference teaches. *In re NTP, Inc.*, 654 F.3d 1279, 1297 (Fed. Cir. 2011). “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art

⁶ The nature of the processing is not described, except to state that “once the packets are processed by the central processor the network processors are able to clear their forwarding data-path and are able to receive new control packets.” *See* Ex. 1001, 3:52–54. The term “central processor” is not defined in the context of the Common Processor or its Central Processing Unit. *See id.* at 3:46–47, 3:52–54.

⁷ The ’630 patent does not describe how the forwarding path is created or how creation of the forwarding path differs from routing packets to the next location or router on its way to its final destination.

⁸ The ’630 patent does not describe how the packet or path “might possibly be adapted.”

reference.” *Verdegaal Bros. Inc., v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987); *see also Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008) (to anticipate a patent claim under 35 U.S.C. § 102, “a single prior art reference must expressly or inherently disclose each claim limitation”). Moreover, “[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

Whether a reference anticipates is assessed from the perspective of an ordinarily skilled artisan. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (“[T]he dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference’s] teaching that every claim element was disclosed in that single reference.” (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991))) (second two alterations in original)).

Additionally, under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates. *MEHL/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349–50 (Fed. Cir. 2002).

The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art;

(3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; accord *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the “interrelated teachings of multiple patents”; “any need or problem known in the field of endeavor at the time of invention and addressed by the patent”; and the background knowledge, creativity, and common sense of the person of ordinary skill.

Perfect Web Techs., Inc. v. InfoUSA, Inc., 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–21 (2007)).

In determining whether a claim is obvious in light of the prior art, when in evidence, we consider any relevant objective evidence of non-obviousness. *See Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Patent Owner does not present evidence of such objective considerations.

We analyze the asserted grounds of unpatentability in accordance with these principles to determine whether Petitioner has met its burden to establish unpatentability of the claims by a preponderance of the evidence.

VIII. THE CHALLENGE TO CLAIMS 1–4, 6, 10, AND 12 AS ANTICIPATED BY OR OBVIOUS OVER GOURILLEC

A. *Gouriellec*

Gouriellec concerns controlling traffic in a data communications network. Ex. 1005, 1:15–16. Gouriellec explains that unlike hop-by-hop on-demand forwarding of Layer 2 and Layer 3 protocols, a multiprotocol label switching (MPLS) protocol “provides a common protocol for end-to-end switching over heterogeneous switching nodes referred to as label switch routers (LSRs) on pre-configured label switched paths (LSPs). A label switched path is a path through an MPLS network so that when a label is applied, traffic transits multiple routers in the LSP.” *Id.* at 1:24–34. In the MPLS protocol,

analysis of a packet's network layer header is done only once, and not repeated in subsequent hops. In the subsequent hops, a label that is attached to the packet is used as an index into a table which specifies the next hop, and a new label. The old label is replaced with the new label, and the packet is forwarded to its next hop.

Id. at 1:39–45. In MPLS LSP technology, each LSP generally is assigned a committed bandwidth. *Id.* at 1:46–47. During low network traffic periods the assignment of committed bandwidth often does not allocate excess bandwidth to the LSPs; conversely, during peak network traffic periods, traffic within an LSP's committed bandwidth may be dropped if the aggregate traffic accepted into a node exceeds the node's queuing capacity. *Id.* at 1:47–57.

Gouriellec discloses an ingress switching node that polices traffic to control network traffic traversing an oversubscribed LSP. *Id.* at 4:11–14. Subscribed committed bandwidth, referred to as a committed rate (CR) is aimed to be always available due to end-to-end bandwidth reservation in queues along the LSP pipe. *Id.* at 3:55–60. A subscribed conditional bandwidth, i.e., an excess rate (ER), is aimed to be statistically available via statistical multiplexing based on real time load of the node queues along the LSP pipe. *Id.* at 3:62–65. An edge switching node polices and discards packets in a traffic flow that exceeds a subscribed CR and ER; traffic that only exceeds the CR is admitted, but marked to be discarded if the network is congested; traffic that does not exceed the CR is admitted without marking. *Id.* at 4:14–19.

Figure 2 of Gouriellec, reproduced below, is a schematic block diagram of edge and core switching nodes in an LSP. *Id.* at 2:63–65.

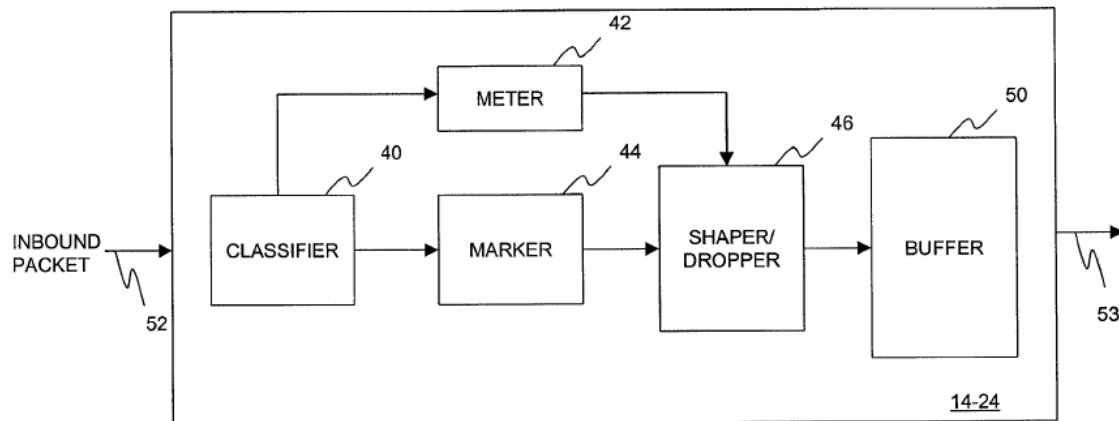


FIG. 2

Figure 2 of Gouriellec shows switching nodes 14–24. Each switching node has classifier 40 that classifies inbound packet 52 based on source/destination address, port numbers, etc., and selects flows that are to receive a particular service. *Id.* at 4:44–49, 5:10–14. Meter 42, which is of conventional implementation, checks traffic flow against a customer’s traffic profiles in the customer’s SLA and identifies those that are within and outside a customer’s traffic profile. *Id.* at 4:50–58, 5:15–26. Marker 44 marks packets based on the classification and metering information and shaper/dropper 46 makes traffic flow conform to the customer’s profile. *Id.* at 4:50–58, 5:27–31; *see also id.* at Fig. 5.

B. Independent Claim 1

1. Claim 1 Preamble

The preamble of claim 1 recites a router for routing packets in a telecommunication network. Petitioner cites Figures 1 and 2 of Gouriellec as disclosing a telecommunications network in which hosts (end user devices) 10, 28 receive and transmit data packets (frames) over LSP 30. Petitioner notes that LSP 30 has edge and core switching nodes, e.g., ingress switching node 14, core switching node 18, and egress switching node 24

that could be packet routers. Pet. 31–32. Patent Owner does not explicitly argue that Gouriellec fails to teach the features recited in the preamble of claim 1. To the extent that the preamble of claim is limiting, we are persuaded that Petitioner has demonstrated Gouriellec discloses these features.

2. *Claim Limitations 1.a and 1.b*

As to the plurality of inputs recited in claim limitation 1.a, Petitioner notes that any router receives inbound traffic flow via an input port, and by design has a plurality of such input ports that are replicated. Pet. 32 (citing Ex. 1003, Akl Decl. ¶¶ 59, 63, 106; Ex. 1005, 5:10–12, Fig. 2).

Petitioner also argues that Gouriellec discloses the claimed “common processor” with a discarder and a central processing unit for processing packets that are not dropped. *Id.* at 33. Petitioner cites Gouriellec’s disclosure of a shaper/dropper for determining whether to forward or discard a packet and a buffer for processing non-discarded packets. *Id.* (citing Ex. 1005, 5:27–32). Petitioner contends that “[a]fter the buffer, Gouriellec continues to process the packets ‘in a similar manner as the CPU shown in Figure 1 of the ’630 patent since Figure 2 is a switching node (router).’” *Id.* (quoting Ex. 1003, Akl Decl. ¶ 108). According to Petitioner, Gouriellec discloses processing packets according to the MPLS routing protocol that works with the protocols listed in the challenged ’630 patent “by analyzing a packet’s network layer header, i.e., control packet, at the ingress router [and] assigning a label to the packet, which is then used by subsequent routers.” *Id.* at 34 (citing Ex. 1005, 1:33–34; Ex. 1003, Akl Decl. ¶¶ 110–111; Ex. 1008, 4).

Turning to claim limitation 1.b, Petitioner states that Gouriellec’s ingress switching node 14 receives inbound traffic flow via port 52 and

invokes classifier 40. *Id.* at 35 (citing Ex. 1005, 5:10–28). Classifier 40 classifies inbound packets based on information in the packet’s header, such as source/destination address, port number, and DiffServ code point, thus selecting the traffic flows that are to receive a particular service. Ex. 1005, 4:44–49. As Petitioner points out, “[t]he classified packet is transferred to meter 42 for checking traffic flow properties in light of the new inbound packet.” Pet. 35 (citing Ex. 1005, 5:10–28); *see also* Ex. 1005, 4:50–58 (discussing comparison of traffic flow with a customer’s traffic condition agreement (TCA) and service level agreement (SLA) and types of meters).

Petitioner contends that Gouriellec teaches marking packets, including control packets, according to the receiving rate because Gouriellec’s marker 44 receives and marks the classified packet based on the classification information and the traffic flow information from meter 42, e.g., as suitable for discarding unless indicated as being part of committed rate (CR) traffic. *See* Pet. 35; *see also* Ex. 1005, 5:15–16. According to Petitioner, Gouriellec’s marker sets or resets DiffServ codepoints (DCSP fields) that are in packet headers, thus marking control packets, as claimed. Pet. 35 (citing Ex. 1005, 4:61–62; Ex. 1003, Akl Decl. ¶ 114). Petitioner notes that the marked packet is then transferred to shaper/dropper 46 that determines whether to forward or discard the packet. *Id.*; Ex. 1005, 5:27–28.

Petitioner’s expert, Dr. Akl, states that Gouriellec “marks incoming control packets according to a receiving rate so they can be processed according to a routing protocol.” Ex. 1003, Akl Decl. ¶ 113. Discussing the setting and resetting of DCSP fields in header packets in Gouriellec, Dr. Akl testifies that a POSITA would have understood that “Gourillec is talking about control packets when its marker changes or ‘marks’ the information in the header.” *Id.* ¶ 114.

Patent Owner notes that Dr. Akl does not explicitly state Gourillec discloses marking control packets. PO Resp. 11–12. Petitioner replies, however, that our Decision to Institute found no evidence of record undermining Dr. Akl’s testimony that Gourillec meets claim limitation 1.b and that Patent Owner has produced no evidence to the contrary. Pet. Reply 18.

Patent Owner also argues that DCSP fields are fields in a packet header, and that the Petition does not provide evidence that setting or re-setting control DCSP fields in a packet header constitutes marking control packets that are received from the same first plurality of inputs and belong to same routing protocol, as recited in claim limitation 1.b. PO Resp. 11–13.

Petitioner notes that, although Gouriellec explicitly discusses only one input, the Petition establishes Gouriellec demonstrates a router, by design, has a plurality of inputs for receiving packets. Pet. Reply 17–18 (citing Pet. 31–32). Petitioner further points to Gourillec’s disclosure of a classifier 40 that classifies packets before they are transmitted to meter 42 to select traffic flows that are to receive a particular service. *Id.* at 17; *see also* Pet. 35. Petitioner also notes that, as Gouriellec processes packets according to the MPLS protocol, the metered control packets belong to the same routing protocol. Pet. Reply 18 (citing Ex. 1005, 3:37–39; Ex. 1003, Akl Decl. ¶ 110). Thus, we agree with Petitioner that two of the features of the “marking” limitation, i.e., the packets be from the same input and of the same protocol, are met. *See* Section VI.A. herein. We now turn to whether Gourillec marks control packets, as that term is used in the ’630 patent.

Patent Owner argues that Petitioner’s arguments concerning Gouriellec misinterpret control packets to mean marking all incoming packets having a header, regardless of whether an incoming packet is a data

packet, control packet, or another kind of packet. Sur-reply 14 (citing Pet. Reply 7–9).

We addressed the criteria for a “control packet” in our claim construction above. *See* Section VI herein. Gourillec does not distinguish data packets from control packets, as those terms are used in the ’630 patent. Gourillec discloses packets routed according to the MPLS protocol, i.e., a protocol that provides connection-oriented services that enable tunneling across a wide area network, on a pre-configured label switched path.

Ex. 1005, 1:22–38. “A label switched path is a path through an MPLS network so that when a label is applied, traffic transits multiple routers in the LSP.” *Id.* at 1:30–32. In MPLS, a packet is assigned to an FEC just once as a short fixed length “label.” *See* Ex. 1008, 4–6. Although there is no further analysis of a packet’s network layer header, the label is used as an index into a table which specifies a next hop and a new label that replaces the old label. Ex. 1005, 1:39–45; Ex. 1008, 4–6. Thus, the packet contains the information required to create a forwarding path. As the packet is routed at least to a switch capable of doing label lookup and replacement, i.e., capable of processing, all the criteria of a control packet under our construction are met, i.e., the packets in Gourillec are (1) packets that “are to be routed from the different inputs to the common processor;” (2) “in order to be processed by this common processor,” and (3) “comprise the required control data to create the required forwarding path and might possibly be adapted.”

Given this understanding of “control packets” in Gourillec, we now return to the last feature of the “marking” limitation, i.e., that all the marked packets must be “control packets.” *See* Section VI.A. herein. Petitioner has set forth evidence that Gourillec’s marker sets or resets DiffServ codepoints (DCSP fields) that are in packet headers. *See, e.g.*, Ex. 1005, 4:61–62;

Ex. 1003, Akl Decl. ¶ 114. Gouriellec’s teachings are expressly based on the MPLS protocol (*see, e.g.*, Ex. 1005, 1:22–38), which means that the headers of all packets in Gouriellec include forwarding path information. *See, e.g.*, Ex. 1008, 4–6. This supports Dr. Akl’s un rebutted testimony that a POSITA would have understood that “Gouriellec is talking about control packets when its marker changes or ‘marks’ the information in the header.” Ex. 1003, Akl Decl. ¶ 114. Thus, based on the complete trial record, we are persuaded that Gouriellec teaches or at least suggests that all marked packets are “control packets,” as that term is understood in the ’630 patent. We note that Patent Owner’s arguments to the contrary are not supported by any evidence or testimony that undermines Petitioner’s persuasive showing.

Noting that Petitioner acknowledges Gouriellec describes a single input port, Patent Owner also contends that Petitioner has not demonstrated that Gouriellec discloses the claimed packet marker coupled between a first plurality of inputs and the common processor. PO Resp. 18–20. According to Patent Owner, during prosecution, the Office deemed that the relevant claim language is not rendered unpatentable merely by disclosure of a router. *Id.* (citing Ex. 1002, 144). But Patent Owner merely cites an argument concerning a different reference that the applicant proffered in a response the applicant submitted during prosecution. Ex. 1002, 144. As Dr. Akl testified, Gouriellec concerns a device, i.e., a router implementing MPLS, whose operation is such that the input ports are replicated. Pet. Reply 20 (citing Ex. 1003 ¶ 106); *see also* Ex. 1006, Fig. 6 (cited by Dr. Akl and depicting numerous inputs to a router). The ’630 patent itself refers to such devices as “known.” Ex. 1001, 1:7–9.

Having considered all the arguments and evidence of record, we determine that Petitioner has demonstrated Gouriellec would have taught or

suggested claim limitations 1.a and 1.b to a person of ordinary skill in the art.

3. *Claim Limitation 1.c*

Petitioner contends that Gouriellec discloses the claimed common processor that includes a discarder in the form of a dropper/shaper that determines whether to forward or discard a packet. Pet. 36–39. Petitioner notes that Gouriellec discloses dropping marked packets before processing at the buffer according to predefined packet policing rules. *Id.* at 37 (citing Ex. 1005, 5:22–30, 6:30–47).

Patent Owner contends that Gouriellec does not disclose a discarder that discards control packets according to predefined rules and separately recited conditions. PO Resp. 15–16. As discussed above, we are persuaded that Gouriellec discloses the claimed control packets. As to discarding such control packets according to rules and conditions, Petitioner points to Gouriellec’s disclosure of a buffer with a queueing mechanism that determines the fullness of the non-congestion area of the oversubscribed queue and marked packets rules that discard packets when certain conditions are met, e.g., the level of the non-congestion area is above the congestion watermark. Pet. Reply 19 (citing Ex. 1005, 5:27–47). Petitioner further emphasizes that Gouriellec also breaks down traffic into Committed Rate and Excess Rate categories and discards packets under certain conditions. *Id.* (citing Ex. 1005, 6:30–7:2; Ex. 1003, Akl Decl. ¶ 119).

Patent Owner also contends that Petitioner has not demonstrated that Gouriellec discloses the claimed common processor under a construction limiting the term to a component in a router that receives and processes control packets but not data packets. PO Resp. 22–23. Patent Owner’s arguments center on the construction of control packet and we find them

unpersuasive for the same reasons as those discussed above. *See* Section V.III.B.2 herein.

Having considered all the arguments and evidence of record, we determine that Petitioner has demonstrated that Gouriellec would have taught or suggested claim limitation 1.c to a person of ordinary skill in the art.

4. *Conclusion as to Claim 1*

Having reviewed the arguments and evidence of record, we are not persuaded that Petitioner has demonstrated that Gouriellec discloses all the limitations of claim 1 for purposes of anticipation because Gouriellec does not explicitly distinguish control packets recited in limitation 1.b from data packets. Instead, Gouriellec describes a classifier that classifies inbound packets based on information in a header having source and destination addresses and port numbers to select traffic flows that are to receive a particular service. Ex. 1005, 4:44–49. Petitioner relies on the unrebutted testimony of Dr. Akl, which we find to be persuasive, for the proposition that a POSITA would have understood that “Gourillec is talking about control packets when its marker changes or ‘marks’ the information in a header.” Pet. 35, Pet. Reply 7 (citing Ex. 1003, Akl. Decl. ¶ 114).

As Gouriellec concerns controlling flow of traffic into a node over a label switched path, Gouriellec is directed to the specific subject matter of the ’630 patent. *See* Ex. 1005, 4:11–19. As discussed above, Gouriellec discloses metering, marking, and discarding packets. *Id.* at 4:63–64, 5:27–32, 6:30–47; Ex. 1003, Akl Decl. ¶¶ 113–120. Although Gouriellec does not explicitly discuss a plurality of inputs, as recited in limitation 1.b, Petitioner cites Dr. Akl’s unrebutted testimony, which we find to be persuasive, that multiple input routers were well known. Pet. 33, Pet. Reply 20 (citing

Ex. 1003, Akl Decl. ¶ 106); *see also* Ex. 1006, Fig. 6 (cited by Dr. Akl and depicting numerous inputs to a router)).

Based on our construction of the “control packet,” we determine that Petitioner has demonstrated that Gouriellec would have taught, or at least suggested, all the limitations of claim 1 to an ordinarily skilled artisan in router technology. *See* Sections IV, VI herein. Therefore, we find that Petitioner has demonstrated by a preponderance of the evidence that claim 1 would have been obvious over Gouriellec to a person of ordinary skill in the art.

C. Claim 2

Petitioner’s discussion of claim limitations 2.a and 2.b is incorporated into Petitioner’s discussion of claim limitations 1.a and 1.b. Pet. 32–36. Petitioner notes that claim limitation 2.c does not recite the “coupling” limitation in claim limitation 1.b, but asserts that Gouriellec teaches claim limitation 2.c for the same reasons as discussed with respect to claim limitation 1.b. *Id.* at 36. Petitioner asserts that Gouriellec teaches claim limitation 2.d for the same reasons Gouriellec teaches claim limitation 1.c. *Id.* at 36–38.

Patent Owner does not introduce evidence or arguments specific to claim 2 that differ substantially from those it presented concerning claim 1. For the same reasons as those discussed above with respect to claim 1, we are not persuaded that Petitioner has demonstrated that Gouriellec discloses all the limitations of claim 2 for purposes of anticipation. *See* Section VIII.B. Similar to our analysis of claim 1, having considered all the arguments and evidence of record, we find that Petitioner has demonstrated that Gouriellec would have taught, or at least suggested, to a person of ordinary skill all the limitations of claim 2 for purposes of obviousness.

D. Claim 3

Petitioner asserts that Gouriellec discloses a telecommunications network in Figure 1 and that Gouriellec's network includes the claimed router for routing packets, such as ingress node 14. Pet. 39 (citing Ex. 1005, Fig. 1; Ex. 1003, Akl Decl. ¶¶ 57, 90, 105).

Patent Owner argues only that Petitioner has failed to prove unpatentability of claims 1 and 2 and does not address the additional limitations of claim 3. PO Resp. 23. Having considered all the arguments and evidence of record, we find that Petitioner has demonstrated that Gouriellec would have taught, or at least suggested, to a person of ordinary skill the limitations of claim 3 for purposes of obviousness.

E. Claims 4 and 10

Petitioner cites Gouriellec as disclosing that shaper/dropper 46 is a part of the claimed common processor that makes traffic conform to a customer's traffic profile. Pet. 39–40 (citing Ex. 1005, 4:63–64). Petitioner further contends that “duplicating functional blocks, like the common processor, is a routine process and that ‘Gouriellec’s common processor could be duplicated for parallel processing of excess traffic control.’” *Id.* at 40 (quoting Ex. 1003, Akl Decl. ¶ 131).

Patent Owner argues only that Petitioner has failed to prove unpatentability of claims 1 and 2 and does not address the additional limitations of claims 4 and 10. PO Resp. 23. Having considered all the arguments and evidence of record, we find that Petitioner has demonstrated that Gouriellec would have taught, or at least suggested, to a person of ordinary skill the limitations of claims 4 and 10 for purposes of obviousness.

F. Claim 6 and 12

Claims 6 and 12 depend from claims 1 and 2, respectively, and recite “each control packet belongs to a packet stream and wherein said packet marker designates a receiving rate of the packet stream to which said control packet belongs.” Petitioner cites Gouriellec as disclosing that inbound packets from oversubscribed LSPs enter a queue as marked or unmarked based on traffic flow information from meter 42. Pet. 41 (citing Ex. 1005, 5:15–26, 6:1–3, Fig. 3; Ex. 1003, Akl Decl. ¶ 133).

Patent Owner argues only that Petitioner has failed to prove unpatentability of claims 1 and 2 and does not address the additional limitations of claims 6 and 12. PO Resp. 23. Having considered all the arguments and evidence of record, we find that Petitioner has demonstrated that Gouriellec would have taught, or at least suggested, to a person of ordinary skill the limitations of claims 6 and 12 for purposes of obviousness.

IX. CONCLUSION⁹

Having considered all the arguments and evidence of record we determine that Petitioner has not demonstrated by a preponderance of the evidence that claims 1–4, 6, 10, and 12 are anticipated by Gouriellec. We also determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 6, 10, and 12 are unpatentable as obvious over

⁹ 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. 16,654 (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).

Gouriellec. Having determined that all the challenged claims are unpatentable as obvious over Gouriellec, we need not further address Petitioner's challenge based on Everdingen.

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–4, 6, 10, 12	102(a) ¹⁰	Everdingen ¹¹		
1–4, 6, 10, 12	103(a)	Everdingen ¹²		
1–4, 6, 10, 12	102(a)	Gouriellec		1–4, 6, 10, 12
1–4, 6, 10, 12	103(a)	Gouriellec	1–4, 6, 10, 12	
Overall Outcome			1–4, 6, 10, 12	

X. ORDER

In consideration of the above it is:

ORDERED that claims 1–4, 6, 10 and 12 are unpatentable;

FURTHER ORDERED that 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.

¹⁰ We apply the pre-AIA provisions of the statute, as the application for the '630 patent was filed before March 16, 2013.

¹¹ The majority does not reach this ground. *See supra* § IX.

¹² The majority does not reach this ground. *See supra* § IX.

Concurring Opinion filed by *Administrative Patent Judge* McNAMARA

XI. INTRODUCTION

I concur with the majority's determination that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims are unpatentable over Gouriellec. I write separately to address Petitioner's challenge based on Everdingen.

XII. THE CHALLENGE TO CLAIMS 1–4, 6, 10, AND 12 AS ANTICIPATED BY OR OBVIOUS OVER EVERDINGEN

A. *Everdingen*

Everdingen relates to methods and apparatus for controlling source generated data flow in data networks using metering in a switching device, such as a router. Ex. 1004 ¶¶ 2, 8–11, 35. Everdingen discloses that users, who want to transport data, and service providers, who are responsible for transporting data to its intended destination, operate according to a Service Level Agreement (SLA) that specifies the extent to which the user can use the service provider's network. *Id.* ¶ 3. To facilitate fair use of the system, such SLAs commonly specify a user's Peak Information Rate (PIR), such that the user is only allowed to send data at a rate up to the PIR. *Id.*

Everdingen discloses that it was known to transmit incoming data packets through the switching device, i.e., a router, when the source specific incoming data rate is below the predetermined rate, and to discard packets if the predetermined rate is exceeded or the if the switching device becomes congested, i.e., the incoming data flow (the total added source specific incoming data rates) exceeds the transport capacity of the switching device. *Id.* ¶ 5. Recognizing that dropping source specific data causes errors in the sent data, Everdingen discloses providing a warning signal warning the sources. *Id.* ¶¶ 6–9.

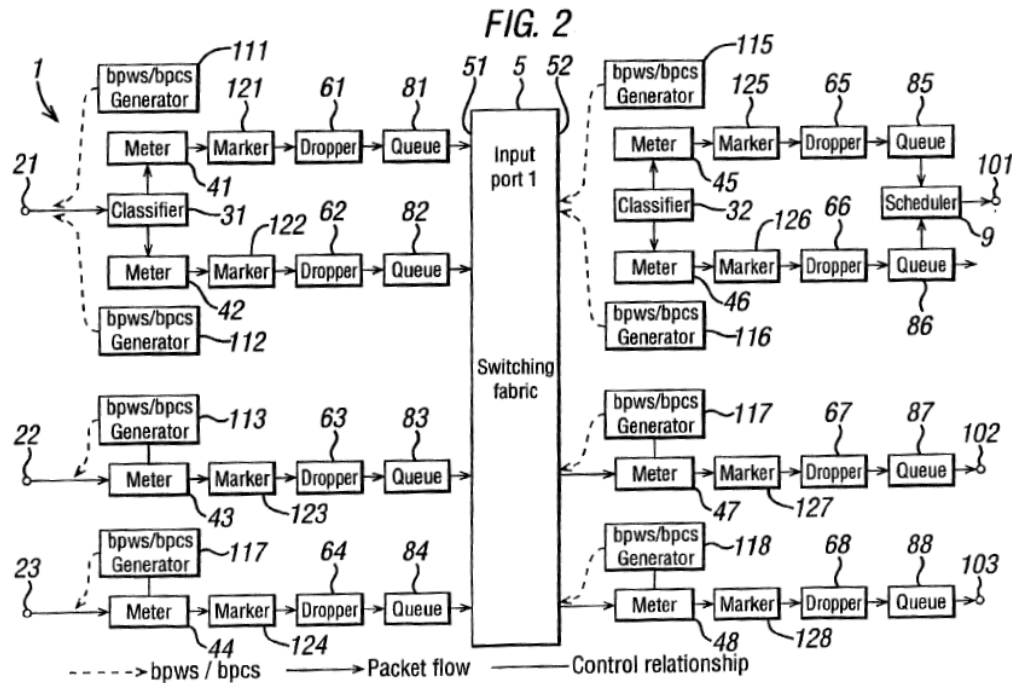
Everdingen's system is "adapted to transmit a backpressure warning signal (bpws) to a source of the incoming data if the source specific incoming data rate exceeds a predetermined contract rate." *Id.* ¶ 10; *see also id.* ¶ 9 ("a warning signal warns the source of the data packets if the source specific incoming data rate exceeds the predetermined data rate of the switching device or the switching device become congested."). Noting that sending a bpws was a known method to signal switching device congestion, Everdingen discloses that the bpws can also warn a sender that its data rate exceeds a predetermined rate. *Id.* ¶ 9. Everdingen

provide[s] a control device for controlling data flow, including one or more input ports, one or more meter devices connected to the input ports for comparing a source specific incoming data rate with a predetermined contract rate, one or more output ports, and at least one backpressure warning signal generator device connected to the input port and the meter device.

Id. ¶ 10.

In Everdingen, a meter device compares a "source specific" incoming data rate with a predetermined stored data rate for that specific source and generates a bpws signal to the data source if the predetermined rate or the transport capacity of the meter is exceeded. *Id.* ¶ 15, Fig. 1. A backpressure clearance signal (bpcs) is transmitted to the source when data transmission may be initiated again, e.g., when the incoming rate has dropped below the predetermined rate or after a pre-set time. *Id.*

Figure 2 of Everdingen, reproduced below, is a diagram of a switching device provided with metering devices.



In Figure 2, input port 21 is connected to classifier 31 that determines the type of incoming data packets (voice, computer data, etc.) and, depending upon the type, routes the packets to meter 41 or 42. *Id.* at 42. “Such discrimination between data type makes it possible to send different types of data via different paths and to take into account certain transmission priorities . . . [and] different types of data packets may be subjected to different settings of SLA.” *Id.* ¶ 22. Meter devices 41–48 use algorithms, e.g., the leaky bucket algorithm or the token bucket algorithm, and are connected to marker devices 121–128 that mark packets as discardable or non-discardable depending on the result of the metering. *See id.* ¶¶ 23–26. Dropper devices 61–68 eliminate packets depending on the marking or if queues 81–88 become congested. *Id.* ¶ 23. A separate meter can be used for each source, or a meter device may be time shared for multiple sources. *Id.* ¶ 29. After metering, marking, and possible dropping, data packets are transmitted to switching fabric 5 that determines the packet’s destination

output port. *Id.* ¶ 32. The same approach as that described for the input side can be applied to the output side of switching fabric 52 to control the data rate on outgoing ports 101–103, according to contractual provisions. *Id.* ¶¶ 33–34. In this case, an algorithm might mark incoming data packets at ports 21–23 with corresponding input port and source address fields, so that the bpws/bpcs generated by devices 114–118 on the output side of switch fabric 52 will include those fields. *Id.* ¶ 33.

B. Claim 1

1. Claim 1 Preamble

The preamble of claim 1 recites “[a] router for routing packets in a telecommunication network, said router [comprises].” Petitioner cites Everdingen as disclosing a switching device and states that such a switch in a data network, e.g., a telecommunications network, includes a router. Pet. 16 (citing Ex. 1004 ¶¶ 14, 35 (stating “the invention can be applied in any network device that includes a meter device . . . the invention can be applied in a router”); Ex. 1003, Akl Decl. ¶ 58; Ex. 1006, 1:17–19). Patent Owner does not explicitly dispute that Everdingen teaches the preamble of claim 1. As Everdingen concerns methods and apparatus for controlling data flow in data networks, I would determine that, to the extent the preamble of claim 1 is limiting, Petitioner has demonstrated that Everdingen teaches a router for routing packets in a telecommunications network. *See* Ex. 1004, code (57) (referring to treatment of incoming data packets).

2. Claim Limitation 1.a

Petitioner identifies as claim limitation 1.a the recitation “a plurality of inputs for receiving said packets and a common processor (CP) coupled to said plurality of inputs for processing at least part of said packets according to one or more routing protocols.” Petitioner cites Everdingen as disclosing

a device that receives multiple inputs of incoming packets. Pet. 18. Noting that the '630 patent describes the claimed common processor as a “functional block” that can be manufactured using well known electronic components, Petitioner cites Everdingen as disclosing a common processor that “includes a discarder and a central processing unit for processing packet that are not dropped.” *Id.* (citing Ex. 1001, 6:8–13; Ex. 1003, Akl Decl. ¶ 65). Patent Owner does not explicitly dispute that Everdingen teaches claim limitation 1.a. Having considered the arguments and evidence of record, I would determine that Petitioner has demonstrated Everdingen teaches claim limitation 1.a.

3. *Claim Limitation 1.b*

Petitioner identifies as claim limitation 1.b the recitation:

wherein said router comprises at least one packet marker (M11(M_BGP)), coupled between a first plurality of inputs (IN11, IN12, IN13) of said plurality of inputs and said common processor (CP), for marking incoming control packets of said at least part of said packets, according to a receiving rate of control packets received at said first plurality of inputs (IN11, IN12, IN13) and to be processed according to a first routing protocol, said incoming control packets being received at one of said first plurality of inputs (IN11, IN12, IN13) and to be processed according to said first routing protocol, said marker (M11(M_BGP)) provides thereby marked control packets.

Pet. 19–20. Petitioner states that Everdingen’s inputs and common processor are coupled in the same manner as disclosed in the '630 patent, such that Everdingen’s inputs eventually reach packet droppers in the common processor after being marked. *Id.* (citing Ex. 1003, Akl Decl. ¶ 65; Ex. 1004 ¶¶ 22–23, Fig. 2). Petitioner notes that “Everdingen’s dropper devices 61–64 discard marked packets ‘depending on the result of the

metering, the marking of the packets or if the queues 81–88 become congested.” *Id.* at 18 (quoting Ex. 1004 ¶ 23).

Petitioner argues that because “[i]nputs to Everdingen’s input ports optionally go through a classifier, then through a meter and a marker and arrive at a dropper, which is part of a common processor, . . . Everdingen’s marker is coupled as claimed in limitation 1[b].” *Id.* at 20 (citing Ex. 1004 ¶¶ 22–23, Fig. 2; Ex. 1003, Akl Decl. ¶¶ 65, 71). Everdingen refers to packets as data packets and does not distinguish control packets from data packets, as those terms are used in the ’630 patent Specification. *See, e.g.*, Ex. 1004 ¶¶ 5, 17–19, 22, 23, 25, 26, 28, 32, 33, claims 5–11, 22–24, 27, 29.

Noting that the ’630 patent distinguishes control packets from data packets according to their functionality, Petitioner contends that “Everdingen marks packets including control packets, according to a receiving rate of the packets at the router’s inputs.” *Id.* at 20–21 (citing Ex. 1003, Akl Decl. ¶ 75; Ex. 1004 ¶ 24). As evidence that Everdingen teaches marking control packets, Petitioner references U.S. Patent 6,826,147 B1 (“Nandy”) for the proposition that a control packet, i.e., a “header packet,” is injected into the flow for every fixed amount of data belonging to the flow. *Id.* (citing Ex. 1003, Akl Decl. ¶ 73; Ex. 1007, code (57), 2:52–54). Nandy’s injected header packets follow the same path between edge routers as data paths and are used as a control to sense congestion along a data path and enforce congestion control, based on how many control packets are dropped.¹³ Ex. 1007, 5:22–39, 5:57–6:5.

¹³ Petitioner’s unpatentability grounds do not include Nandy. Nandy is drawn to managing an aggregate flow of data between a first edge device and a second edge device. *See* Ex. 1007, 1:15–19, 2:57–59.

According to Petitioner, Everdingen's central processing unit, i.e., the switching fabric, marks all packets (including control packets) as discardable or non-discardable and then uses a routing protocol to determine the output port to which an incoming data packet is sent. Pet. 19, 21–22. Thus, according to Petitioner, Everdingen teaches or suggests marking control packets according to a receiving rate and processing them according to a routing protocol as claimed. *Id.* (citing Ex. 1003, Akl Decl. ¶ 76).

According to Patent Owner, Petitioner's assertion that Everdingen discloses claim limitation 1.b is based on an indefensible interpretation that the claim language "broadly encompasses indiscriminately marking *all* packets based on the receiving rate of *all* packets, regardless of whether each packet counted over time is an incoming control packet, and regardless of whether each counted packet is received at the same first plurality of inputs and belongs to the same first routing protocol." PO Resp. 9. Patent Owner notes the testimony of Dr. Akl that a person of ordinary skill would have understood that marker devices in Everdingen mark packets based on their receiving rate regardless of packet type. *Id.* (citing Ex. 1003 ¶ 75, stating "a POSITA understands that Everdingen's marker devices mark packets based on their receiving rate regardless of packet type, including control packets, received at Everdingen's input ports."). According to Patent Owner, Everdingen is deficient because "the claimed marking must be done according to the receiving rate of certain qualifying control packets—i.e., only those (1) incoming control packets that are (2) received at the same first plurality of inputs and (3) that belong to the same first routing protocol." *Id.* at 10 (emphasis omitted). Patent Owner points to scenarios in the '630 patent where only one of two incoming control packets contributes to the receiving rate, because only one of those packets satisfies the additional

claim criteria of being (1) “received at said first plurality of inputs” and (2) configured to be processed according to a first routing protocol.” *Id.* at 11 (citing Ex. 1001, 2:48–3:3) (emphasis omitted).

Petitioner argues that Patent Owner’s discussion of Dr. Akl’s testimony that Everdingen marks packets regardless of packet type is taken out of context and misunderstands the metering and marking procedure disclosed by Everdingen. Pet. Reply 4 (referencing Ex. 1004, Fig. 2). Petitioner notes that Dr. Akl testified that Everdingen describes “a classifier that determines the type (voice, video, computer data, etc.) of the incoming data packets, and, depending on the incoming data packet type, routes the incoming data packet to meter device 41 or further to different meter device 42.” *Id.* at 5 (citing Ex. 1003, Akl Decl. ¶ 75; Ex. 1004 ¶ 22). Petitioner emphasizes Dr. Akl’s explanation that a person of ordinary skill would have understood that Everdingen’s classifier looks at the packet header to determine the packet type, including whether the incoming packet was a control packet, and therefore, the classifier identifies “control packets” as it directs packets to a particular meter according to packet type. *Id.* at 5–6 (citing Ex. 1003, Akl Decl. ¶ 75; Ex. 1004 ¶ 22). According to Petitioner, taken in context, Dr. Akl’s testimony means that, for each classified type, Everdingen meters the packets of that type and marks the packets according to the respective receiving rate of packets sent to a particular meter, including control packets. *Id.* at 6 (citing Ex. 1004 ¶¶ 22–23).

Petitioner also argues that the ’630 patent does not discuss how ‘control packets’ might be separated from ‘data packets’ but, instead, is based on the basic premise that a ‘control packet’ is part of a packet that can further contain non-control data.” Pet. Reply 8. As noted in the Petition, the ’630 patent states that control packets are packets that include the control

data to create the required forwarding path. Pet. 20; Pet. Reply 7 (citing Ex. 1001, 1:13–17). According to Petitioner, Patent Owner’s argument is flawed because control packets and data packets are not entirely separate packets, such that the metering of the former is distinct from metering of the latter—instead, in the ’630 patent, control packets are distinguished from data packets by functionality. Pet. 20 (citing Ex. 1003, Ak1 Decl. ¶ 72); Pet. Reply 7 (citing Ex. 1003, Ak1 Decl. ¶¶ 72, 110, 114).

As observed in the claim construction analysis (*supra* § VI.B), “marking incoming control packets . . . according to a receiving rate of control packets” means that (1) the packets must all be “control packets” (i.e., a particular *type* of packet), (2) they must all be “received at said first plurality of inputs” and (3) they include only those packets that are “to be processed according to a first routing protocol.” Petitioner notes that in Everdingen all packets received at inputs 21–23 are destined for the switching fabric 191, but as shown in Everdingen’s Figure 2, exemplary input 21 is classified in classifier 31 and, based on its classification, routed to meter 41 or meter 42 where the packets are counted; droppers 61 and 62 drop packets based on the metering results, therefore discarding packets before they are processed at the switch fabric. Ex. 1004 ¶¶ 22–23. As all packets, including control packets, are counted, Everdingen meters and marks control packets.

Patent Owner contends that the claims require distinguishing control packets from data packets because the claims recite marking control packets received at the first plurality of inputs belonging to the same first routing protocol according the specific rate they are received. PO Resp. 8. Everdingen discloses that the packet marking is “source specific” and that the packets are separated based on type, e.g., voice, video, and data. As

voice, video, and data packets are processed according to different protocols, I would determine that Everdingen discloses at least these two aspects of claim limitation 1.b.

I now turn attention to whether Everdingen discloses marking “incoming control packets . . . according to the receiving rate of control packets.” The claims recite marking control packets, but do not mention data packets. The ’630 patent discloses that one of its objectives is “to provide a router to execute a routing method . . . to relieve the common processor of the common control point in the event of an excess of incoming control packets to be processed by the common processor” by “discarding control packets before the control packets are to be processed by the common processor.” Ex. 1001, 2:8–12, 2:27–30. The ’630 patent is silent about data packets, i.e., packets that do not leave the forwarding path, and does not discuss how data packets are treated. *Id.* at 1:10–22 (“the present invention is dealing with . . . control packets . . . since only these packets are to be routed to the common processor in order to be processed by the common processor”). The ’630 patent does not preclude routing data packets to the common processor; the ’630 patent does not preclude the common processor from processing control information in the packet to determine the next location on the forwarding path; and the ’630 patent does not explicitly preclude marking data packets or marking all packets.

The ’630 patent Specification states that “only these [control] packets are to be routed from the different inputs to the common processor in order to be processed by this common processor.” Ex. 1001, 1:20–22. Although claim 1 of the ’630 patent does not explicitly preclude marking other packets or marking all packets, claim 1 does require the marking to be made according to the receiving rate of the control packets. I note that this

limitation is met when all packets are “control packets,” as defined in the ’630 patent.

Although Patent Owner contends that in the claims of the ’630 patent “not all packets are going to be control packets” (Hr’g Tr. 49:20–21), Patent Owner offers no evidence to establish that principle applies to Everdingen’s packets. Neither the ’630 patent nor Everdingen discusses the details of how packets are transmitted along a forwarding path. Everdingen refers to packets as “data packets” and does not distinguish control packets from data packets. *See generally* Ex. 1004. As the claims have been construed, Everdingen’s packets are control packets if they satisfy the following criteria: (1) they are packets that “are to be routed from the different inputs to the common processor,” (2) “in order to be processed by this common processor,” and (3) “comprise the required control data to create the required forwarding path and might possibly be adapted.” *See supra* §VI.B.

Dr. Akl cites MPLS, which discusses how packets are forwarded. Ex. 1003 ¶ 66 As a general principle, as a packet travels from one router to the next, the router makes an independent forwarding decision for that packet. Ex. 1008, 4. For example, in conventional IP forwarding, each hop in turn reexamines a packet and assigns it to an FEC to travel to the next node, based on the longest match for each packet’s destination node. *Id.* Thus, in conventional IP forwarding each packet has the required information to create the required forwarding path, i.e., the packet is routed to the router’s processor for processing to determine the forwarding path. Everdingen’s data packets are source specific, i.e., they come from different inputs, have the control data needed to determine the forwarding path, and are routed to the switching fabric, where they are processed to determine the

next hop on the forwarding path. Thus, the packets in Everdingen meet the requirements of the claimed control packets.

Arguing that classifying any packet with a header as a control packet is erroneous and noting that the word “header” does not appear in the ’630 patent, Patent Owner asserts that Petitioner fails to identify any intrinsic evidence in support of interpreting “control” to mean “header” in the context of the claims. PO Resp. 10 n.1. Patent Owner’s argument is unpersuasive because the location of the routing information within a packet, e.g., in the packet “header,” is not the issue—the ’630 patent’s description of “control packet” does not state where in the packet the information required to create the forwarding path is located. Ex. 1001, 1:13–22. As discussed above, a person of ordinary skill would have understood that information is present in the header of Everdingen’s packets. I also note that, even if all Everdingen’s packets are not the claimed control packets, Everdingen expressly states that its metering can consist of several algorithms, each comparing data flow to a specific rate. Ex. 1004 ¶ 27. Thus, to the extent that Everdingen’s data flow consists of control packets, as that term is used in the ’630 patent, Everdingen would have at least suggested to an ordinarily skilled artisan metering and marking such control packets from specific inputs according to their classifications (protocols), as recited in claim limitation 1.b. *See* Ex. 1003, Akl Decl. ¶ 72 (“[a] POSITA understands that a control packet is also referred to as a “header packet.”), ¶ 74 (“Everdingen also describes marking packets based on the receiving rate of packets received at the input ports”), ¶ 75 (“Everdingen also describes a classifier that ‘determines the type (voice, video, computer data, etc.) of the incoming data packets, and, depending on the incoming data packet type, routes the incoming data packet to meter device 41 or a further meter device 42.’ (*Id.*, ¶ 0022.)”).

Patent Owner also contends that Petitioner has not demonstrated that Everdingen discloses the claimed packet marker. PO Resp. 16–18. Patent Owner states that limitation 1.b recites “‘at least one packet marker’ that must be ‘coupled between a first plurality of inputs and . . . said common processor.’” *Id.* at 16 (alteration in original). According to Patent Owner, Petitioner “overlook[s] that Everdingen discloses each individual marker, at best, is between only one of the alleged inputs and the alleged functional combination of a dropper device with the switching fabric.” *Id.* at 18 (emphasis omitted).

Patent Owner’s argument is unavailing. As Petitioner notes, the claim requires at least one, not one and only one, packet marker coupled between the plurality of inputs and the common processor. Pet. Reply 14. Petitioner points out that Everdingen discloses markers 121–124 coupled to the plurality of inputs 21–23. *Id.* Moreover, as Petitioner points out, Everdingen expressly states it is “it is possible to use a separate meter device 41–48 for each source, but it is equally possible to use a meter in a time shared manner for a multiple of sources.” *Id.* at 15 (citing Ex. 1004 ¶ 29).

Having reviewed the arguments and evidence of record, I would determine that Everdingen teaches the limitations of claim limitation 1.b.

4. *Claim limitation 1.c*

Petitioner identifies as claim limitation 1.c the recitation “said common processor (CP) comprises a discarder (DIS) for discarding, before said processing, one or more of said marked control packets according to said marking and according to predefined rules and conditions.” Petitioner points out that Everdingen’s dropper devices 61–64 discard packets marked based on metering and congestion before the processing by the switching fabric. Pet. 23 (citing Ex. 1004 ¶¶ 23, 32); *see also id.* at 18–19. Petitioner

further observes that Everdingen teaches that different meters can use different algorithms to compare incoming data with a predetermined rate to drop packets according to different rules and conditions, e.g., some meters can use a leaky bucket algorithm, other meters can use a token bucket algorithm, and still other meters can use a predetermined threshold value. *Id.* at 23–24 (citing Ex. 1004 ¶¶ 22, 24–27). Noting the broad definition of “coupled” in the ’630 patent, Petitioner further maps Everdingen’s switch fabric 52, as coupled to the packet droppers, to implement protocols to determine the destination output port of a packet to the claimed common processor. *Id.* at 18–19, 21–23.

Patent Owner argues that Petitioner fails to mention that Everdingen’s disclosure is expressly directed to marking and eliminating only data packets and fails to provide evidence that Everdingen discloses a discarder that discriminately discards marked control packets based on pre-defined rules and separately recited conditions. PO Resp. 14–15. Petitioner replies that Patent Owner’s arguments are premised on its incorrect “control packet” theory and contends that Everdingen marks, meters, and discards “control packets” as that term is used in the ’630 patent. Pet. Reply 12–13.

Patent Owner also contends that Petitioner has not demonstrated that Everdingen discloses the claimed common processor under a construction limiting the term to a component in a router that receives and processes control packets, but not all data packets. PO Resp. 22. Petitioner states that it has presented un rebutted evidence of Everdigen’s switching fabric processing packets according to a routing protocol. Pet. Reply 15.

Patent Owner’s arguments concerning limitation 1.c are grounded in its arguments concerning limitation 1.b. Our extensive discussions of the construction of “control packet” and of claim limitation 1.b addresses the

issues raised by the parties concerning limitation 1.c. *See* Sections VI, XII.B.3 herein. For the reasons discussed above concerning claim limitation 1.b, I agree with Petitioner that Everdingen teaches claim limitation 1.c.

5. *Claim 1 conclusion*

Having reviewed the arguments and evidence of record, I am not persuaded that Petitioner has demonstrated that Everdingen discloses all the limitations of claim 1 for purposes of anticipation because Everdingen does not explicitly distinguish the control packets recited in limitation 1.b from data packets and does not discuss the structure of its packets. Petitioner relies on the un rebutted testimony of Dr. Akl for the proposition that an ordinarily skilled artisan would have understood control information characterizing the control packet recited in limitation 1.b is located in the header of Everdingen's packets. *See* Ex. 1003, Akl Decl. ¶ 72 (“[a] POSITA understands that a control packet is also referred to as a “header packet . . . [w]hen a router determines where to send a packet it generally analyzes the packet's header”), ¶ 110 (“[t]he network layer header of a packet is a control packet.”).

Everdingen is directed to the specific subject matter of the '630 patent, i.e., controlling source specific data flow. Ex. 1004, code (54). As discussed above, Everdingen discloses metering, marking and discarding packets received from specific inputs according to their routing protocols (voice, video, computer data, etc). *See, e.g., id.* ¶¶ 22–24. Based on our construction of the “control packet,” I am persuaded that Petitioner has demonstrated that Everdingen would have taught, or at least suggested, all the limitations of claim 1 to an ordinarily skilled artisan in router technology. *See* Sections IV, VI. Therefore, I would conclude Petitioner

has demonstrated by a preponderance of the evidence that claim 1 would have been obvious over Everdingen to a person of ordinary skill in the art.

C. Claim 2

Independent claim 2 is drawn to a routing method that recites steps generally corresponding to steps carried out by the apparatus recited in claim 1. Petitioner addresses claims 1 and 2 together. Pet. 15.

Petitioner identifies the recitation “receiving said packets by a plurality of inputs of said router” as claim limitation 2.a and the recitation “processing at least part of said packets according to one or more routing protocols by a common processor (CP) coupled to said plurality of inputs” as claim limitation 2.b. *Id.* at 17. Petitioner’s discussion of these limitation is incorporated into Petitioner’s discussions of claim limitations 1.a and 1.b, which are analyzed above. *Id.* at 17–21.

Petitioner identifies as claim limitation 2.c the recitation “wherein said routing method further comprises a step of marking incoming control packets of said at least part of said packets by a packet marker (M11(M_BGP)) according to a receiving rate of control packets received at a first plurality of inputs (IN11, IN12, IN13) of said plurality of inputs and to be processed according to a first routing protocol and providing thereby marked control packets, said incoming control packets being received at one (IN12) of a first plurality (IN11, IN12, IN13) of said plurality of inputs and are to be processed according to said first routing protocol.” *Id.* at 22. Petitioner notes that claim limitation 2.c does not recite the “coupling” limitation in claim limitation 1.b, but asserts that Everdingen teaches claim limitation 2.c for the same reasons as discussed with respect to claim limitation 1.b. *Id.*

Petitioner identifies as claim limitation 2.d the recitation “said routing method further comprises, before said step of processing, a step of discarding by a discarder (DIS) associated to said common processor (CP) one or more of said marked control packets according to said marking and according to predefined rules and conditions.” *Id.* at 22–23. Petitioner asserts that Everdingen teaches claim limitation 2.d for the same reasons Everdingen teaches claim limitation 1.c. *Id.* at 22–24.

Patent Owner does not introduce evidence or arguments specific to claim 2 that differ substantially from those it presented concerning claim 1. For the same reasons as those discussed above with respect to claim 1, I am not persuaded that Petitioner has demonstrated that Everdingen discloses all the limitations of claim 2 for purposes of anticipation. *See* Section XII.B. herein. Similar to the analysis of claim 1, having considered all the arguments and evidence of record, I would conclude that Petitioner has demonstrated Everdingen would have taught, or at least suggested, to a person of ordinary skill the limitations of claim 2 for purposes of obviousness.

D. Claim 3

Claim 3 depends from claim 1 and recites “[a] telecommunication network that comprises a router for routing packets, wherein said router is a router according to claim 1.” Petitioner asserts that Everdingen generally discloses the claimed router and provides an example of an ATM network, which is a telecommunications network. Pet. 24–25 (citing Ex. 1004 ¶¶ 3–5; Ex. 1003, Akl Decl. ¶ 91). Patent Owner argues only that Petitioner has failed to prove unpatentability of claims 1 and 2 and does not address the additional limitations of claim 3. PO Resp. 23. Having considered all the arguments and evidence of record, I would conclude that Petitioner has

demonstrated that Everdingen would have taught, or at least suggested, to a person of ordinary skill the limitations of claim 3 for purposes of obviousness.

E. Claims 4 and 10

Apparatus claim 4 depends from claim 3 and further recites “said router comprises a plurality of common processors each for processing a different part of said packets, each common processor including a respective discarder for discarding one or more of said marked control packets according to said marking and according to predefined rules and conditions.”

Method claim 10 depends from claim 2 and further recites “there are a plurality of common processors each for processing a different part of said packets, said method comprising the step of discarding one or more of said marked control packets according to said marking and according to predefined rules and conditions separately for each control processor.”

Petitioner notes that the ’630 patent refers to selecting one of multiple common processors as “determining a functional block” and argues that claims 4 and 10 “merely duplicate the common processor, which has no patentable weight” and that a person of ordinary skill would have understood that the common processor can be functionally created with a single packet dropper and switching fabric and then duplicated. Pet. 25–26 (citing Ex. 1004, Fig. 2, claim 23; Ex. 1003, Akl Decl. ¶ 95).

Patent Owner argues only that Petitioner has failed to prove unpatentability of claims 1 and 2 and does not address the additional limitations of claims 4 and 10. PO Resp. 23. Having considered all the arguments and evidence of record, I would conclude that Petitioner has demonstrated that Everdingen would have taught, or at least suggested, to a person of ordinary skill all the limitations of claims 4 and 10.

F. Claims 6 and 12

Claims 6 and 12 depend from claims 1 and 2, respectively, and recite the further limitation “each control packet belongs to a packet stream and wherein said packet marker designates a receiving rate of the packet stream to which said control packet belongs.” Petitioner argues that packet streams can include control packets and the Everdingen discloses the packet stream received at each port separately is metered and marked according to that stream’s receiving rate. Pet. 27 (citing Ex. 1004 ¶¶ 22–23; Ex. 1003, Akl Decl. ¶ 98).

Patent Owner argues only that Petitioner has failed to prove unpatentability of claims 6 and 12 and does not address the additional limitations of claim 3. PO Resp. 23. Having considered all the arguments and evidence of record, I would conclude that Petitioner has demonstrated that Everdingen would have taught, or at least suggested, to a person of ordinary skill the limitations of claims 6 and 12 to a person of ordinary skill.

G. Conclusion

Having considered all the evidence and arguments of records, I am persuaded that Petitioner has shown by a preponderance of the evidence that claims 1–4, 6, 10, and 12 are unpatentable as obvious over Everdingen.

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