

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DISPERSIVE NETWORKS, INC.,
Petitioner,

v.

NICIRA, INC.,
Patent Owner.

PGR2018-00063
Patent 9,722,815 B2

Before DEBRA K. STEPHENS, GARTH D. BAER, and
KAMRAN JIVANI, *Administrative Patent Judges*.

STEPHENS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 328(a)

I. INTRODUCTION

We have authority to hear this post-grant review under 35 U.S.C. § 6(c), and to issue this Final Written Decision pursuant to 35 U.S.C. § 328(a). For the reasons that follow, after reviewing all relevant evidence

and assertions, we determine that Dispersive Networks Inc.¹ (“Petitioner”) has shown by a preponderance of the evidence that claims 1–6 and 8–11 of U.S. Patent No. 9,722,815 B2 (hereinafter, “’815 Patent”) are unpatentable. Additionally, we deny Patent Owner’s Motion to Amend.

A. *Procedural History*

Petitioner filed a Petition (Paper 1 (“Pet.”)) requesting a post-grant review of claims 1–11 of the ’815 Patent (35 U.S.C. § 321). Petitioner challenged claims 1–5 and 7 as unpatentable under 35 U.S.C. § 101 (Pet. 7). Petitioner also challenged claims 1–6 and 8–11 as unpatentable under 35 U.S.C. § 112(b) (*id.* at 6–7). Additionally, Petitioner challenged claims 1–5 and 7 as unpatentable under 35 U.S.C. § 103(a) (*id.*).

Nicira, Inc.² (“Patent Owner”) timely filed a Preliminary Response (Paper 17 (“Prelim. Resp.”)) to the Petition. Pursuant to 35 U.S.C. § 324(a) and 37 C.F.R. § 42.4(a), we instituted this post-grant review based on our decision that Petitioner had demonstrated a reasonable likelihood of prevailing as to at least one of the challenged claims of the ’815 Patent (Paper 25 (“Dec. to Inst.”)). Accordingly, we instituted this post-grant review on all the grounds asserted in the Petition, as set forth in our Decision on Institution (*id.* at 56).

Patent Owner filed a request for rehearing (Paper 27 (Req. for Reh’g)), which we granted in part to correct the stated grounds (Paper 47). Patent Owner additionally filed a Patent Owner Response (Paper 33 (“PO

¹ Dispersive Networks, Inc. identifies Dispersive Technologies, Inc. as an additional real party-in-interest (Paper 11, 3).

² Nicira, Inc. identifies VMware, Inc. as an additional real party-in-interest (Paper 5, 3).

Resp.”)). In its response, Patent Owner contends that Petitioner is time barred under 35 U.S.C. § 321(c) for failure to identify a real party-in-interest and that, as a result, the Petition should be denied as to all challenged claims (*see generally* PO Resp.). Patent Owner additionally filed a Contingent Motion to Amend (Paper 35 (“Mot. to Amend”)).

Petitioner filed a Petitioner’s Reply to Patent Owner’s Response (Paper 38 (“Pet. Reply”)) and an Opposition to Patent Owner’s Contingent Motion to Amend (Paper 40 (“Pet. Opp. to MTA”)).

Patent Owner filed a Sur-Reply in response to Petitioner’s Reply (Paper 41 (“PO Sur-Reply”)) and filed a Reply to Petitioner’s Opposition to the Motion to Amend (Paper 42 (“PO Reply to Pet. Opp. to MTA”)).

Petitioner subsequently filed a Petitioner’s Sur-Reply to Patent Owner’s Reply to Petitioner’s Opposition to Patent Owner’s Motion to Amend (Paper 45 (“Pet. Sur-Reply to PO Reply to MTA”)).

At the parties’ request (Papers 44, 46), an Oral Hearing was held on August 13, 2019, a transcript of which is included in the record (Paper 49 (“Tr.”)).

B. Real Parties-in-Interest

Patent Owner states “Nicira, Inc. and VMware, Inc. are real parties-in-interest” (Paper 5, 3).

Petitioner identifies Dispersive Networks, Inc. and its wholly-owned subsidiary Dispersive Technologies, Inc. as real parties-in-interest (Pet. 2; Paper 11, 3).

C. Related Matters

Petitioner and Patent Owner indicate the '815 Patent is not at issue in any additional proceedings (*see generally* Pet. 1–90; Paper 5).

D. The '815 Patent

The '815 Patent, titled “Edge-Gateway Multipath Method and System,” issued Aug. 1, 2017 ('815 Patent Title). The '815 Patent describes a technique for communicatively coupling a local network with a cloud-computing network and service using edge devices connected by wide area network (“WAN”) links (*id.* at Abstract).

The '815 Patent describes an example of a programmable multi-tenant overlay network, which can be “a computer network built on the top of another network” (*id.* at 3:32–35). Figure 1, reproduced below, illustrates an exemplary overlay network (*id.* at 2:17–18).

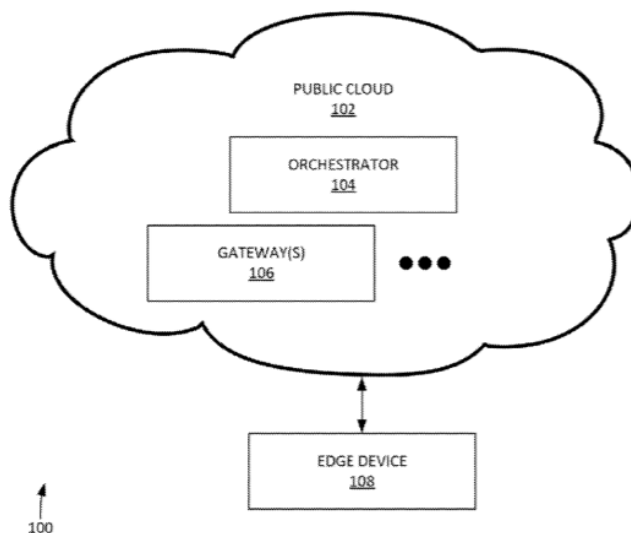


FIGURE 1

As shown in Figure 1, overlay network 100 includes a public cloud 107 and an edge device 108. Public cloud 102 can include SaaS (Software-

as-a-Service) companies 109 (not shown) and orchestrator 104 (*id.* at 3:42–43, 55–56, Fig. 1). SaaS companies 109 provide applications to enterprises and end-consumers (*id.* at 3:43–44). Orchestrator 104 is “a central controller for configuring and monitoring a multi-tenant instance of the overlay network,” which “can enable configuration and monitoring of the network from any location with Internet access” (*id.* at 3:56–60).

The '815 Patent describes a process 300 that removes the requirement for an administrator to configure each individual device in an enterprise computing network (*id.* at 5:58–61, Fig. 3). WAN links, connected directly to edge devices, are detected and measured without need for an external router (*id.* at 5:61–63, Fig. 3, step 302). A central configuration point in the cloud can be connected and “[e]nterprise-specific configuration data, including available gateways, can be downloaded” (*id.* at 5:63–66, Fig. 3, step 304). Using the configuration data, the available gateway(s) can be connected and available bandwidth on each path can be measured (*id.* at 5:66–6:2, Fig. 3, steps 306, 308). “A multipath (MP) protocol can [be] implemented by combining multiple network paths into a composite connection that multiplexes packets from MP packet flows and control information (path quality, link characteristics, clock synchronization, etc.)” (*id.* at 6:3–7).

Network traffic is identified using deep packet inspection that “determine[s] the application and/or application type of the traffic” (*id.* at 5:11–14). “Appropriate measures can be applied to ensure the QoS [(Quality of Service)] of the specific traffic based on the application, application type[,] and business priority of the traffic” (*id.* at 5:14–17).

Figure 8 of the '815 Patent illustrates an exemplary network system that communicates services between an end user (not shown), through an edge device, to an application in the public cloud (*id.* at 2:34–36) and is reproduced below.

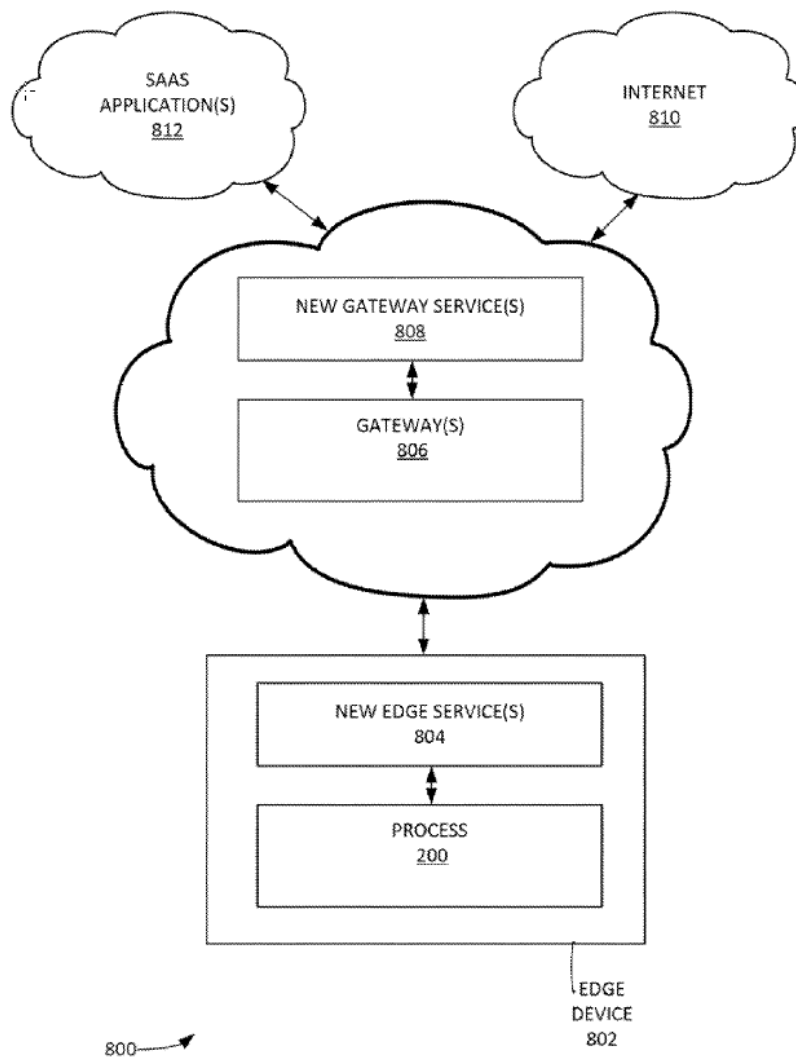


FIGURE 8

Figure 8 illustrates an exemplary arrangement of new services 800 injected into the flow as it goes from end user (not shown) through edge device 802, to the application in the public cloud ('815 Patent 10:53–57).

Edge device 802, in conjunction with gateway(s) 806, provides new services 804 and 808 through the public cloud network (*id.* at 10:55–65). Edge device 802 and gateway(s) 806 provide these services accessing either SaaS application(s) 812 or the Internet 810 (*id.* at 10:59–11:2).

According to the '815 Patent, the advantage of employing a plurality of computing devices in a cloud environment, to access applications, is easier deployment and remote management of network services having a known quality of service ("QoS") (*id.* at 1:34–42). The edge-gateway multipath technique, utilizing a deep-packet inspection engine and a multipath protocol, ensures the maintenance of the proper QoS in an enterprise-specific configuration (*id.* at 1:46–2:4).

E. Illustrative Claims

Of the challenged claims, claims 1, 7, and 8 are independent ('815 Patent 12:34–67, 13:21–53, 13:54–14:42). Claims 2–6 depend directly from claim 1, and claims 9–11 depend directly from claim 8 ('815 Patent 13:1–20, 14:43–57). Independent claim 1 is illustrative of the challenged claims and is reproduced below:

1. An edge-gateway multipath method comprising:
 - providing an edge device in a local network communicatively coupled with a cloud-computing service in a cloud-computing network;
 - automatically detecting a set of wide area network (WAN) links connected directly to the edge device or via an intermediate router;
 - automatically measuring the bandwidth of the WAN links communicatively coupling the edge device with a central configuration point in the cloud-computing network;
 - downloading, from the central configuration point, an enterprise-

specific configuration data into the edge device, wherein the enterprise-specific configuration data comprises a gateway information;

communicatively coupling the edge device with a gateway in the cloud-computing network, wherein the communicatively coupling of the edge device with the gateway comprises a multipath (MP) protocol, and wherein the MP protocol is implemented by combining a set of multiple network paths into a composite connection that transmits a set of data packets from a single user packet flow across all paths simultaneously;

measuring an available bandwidth on each path of the set of multiple network paths between the edge device and the gateway;

utilizing a deep-packet inspection engine to identify an application and an application type in a MP network flow;

determining an optimal multipath network flow setting that ensures a quality of service (QoS) parameter of the multipath network flow; and

setting another MP network flow parameter based on the optimal multipath network flow setting.

(’815 Patent Claim 1).

F. Evidence

Petitioner relies upon the following references (Pet. 6–7):

Reference	Publication Number	Exhibit
Twitchell, Jr. (hereinafter “Twitchell”)	US 9,071,607 B2	1003
Ray (hereinafter “Ray”)	US 8,111,692 B2	1004
Raleigh et al. (hereinafter “Raleigh”)	US 2012/0221955 A1	1005
Devine et al. (hereinafter “Devine”)	US 9,715,401 B2	1008
Dong (hereinafter “Dong”)	US 2011/0153909 A1	1009

Petitioner supports its challenge with a Declaration by Mr. Richard W. Conklin, dated April 30, 2018 (Ex. 1006).

Patent Owner supports its Response with a Declaration by Dr. Nader F. Mir dated August 16, 2018 (Ex. 2023).

G. Prior Art and Asserted Grounds

In its Petition, Petitioner asserts that claims 1–11 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–5, 7	101	Eligibility
1–6	112(b)	Indefiniteness
6	112(b)	Indefiniteness
8–11	112(b)	Indefiniteness
1, 2, 5	103(a)	Twitchell, Ray, Raleigh
7	103(a)	Twitchell, Ray, Raleigh
3, 4	103(a)	Twitchell, Ray, Raleigh, Devine, Dong

II. ANALYSIS

A. Eligibility for Post-Grant Review

As a threshold matter, we must determine whether the '815 Patent may properly be the subject of a post-grant review. Post-grant review is available only if the Petition is filed within nine months of issuance of the challenged Patent (35 U.S.C. § 321(c)). Patent Owner contests the filing date of the Petition based on Petitioner's identification in its Updated Mandatory Notices of wholly-owned subsidiary Dispersive Technologies, Inc. as a real party-in-interest (Prelim. Resp. 14 (citing Paper 11, 3)).

As required by our Rules, Petitioner must file a complete Petition in order to be accorded a filing date (37 C.F.R. § 42.206(a)), and a complete Petition must comply with 37 C.F.R. § 42.204 (37 C.F.R. § 42.206(a)(1)). Compliance under 37 C.F.R. § 42.204 requires the content of the Petition to

set forth grounds for standing and the identification of the challenge (*see* 37 C.F.R. § 42.204(a)–(b)). Additionally, 37 C.F.R. § 42.204 states “[a] motion may be filed that seeks to correct a clerical or typographical mistake in the petition. The grant of such a motion *does not change the filing date* of the petition” (37 C.F.R. § 42.204(c) (emphasis added)). In determining whether the ’815 Patent is eligible for post-grant review, we consider the record in its entirety (*see* 35 U.S.C. § 324(a)).

On July 20, 2018, after a call with the parties, we authorized Patent Owner’s request “to file a motion for additional discovery relating to whether and to what exten[t] a relationship exists between Petitioner and its subsidiary, Dispersive Technologies, Inc. (‘DT’)” (Paper 8, 2). Patent Owner filed a Patent Owner Motion for Additional Discovery (Paper 9) and, in response, Petitioner filed a Petitioner’s Opposition to Patent Owner’s Motion for Additional Discovery (Paper 13). Petitioner additionally filed an Updated Mandatory Notice in which Petitioner updated its mandatory notices to identify Dispersive Technologies, Inc. as a real party-in-interest, but Petitioner “maintains that Dispersive Technologies, Inc. was not a real party-in-interest when the petition was filed” (Paper 11). In its Preliminary Response, Patent Owner contended the “Petition was incomplete and was not entitled to a filing date of May 1, 2018 because it failed to identify Dispersive Technologies, Inc. (‘DT’) as a real party-in-interest (RPI)” (Prelim. Resp. 11).

After consideration of the issue, in our August 30, 2018 Order, we allowed Petitioner to update its mandatory notice and amend its disclosure of real parties in interest to include Dispersive Technologies, Inc., without changing the filing date of the Petition (Paper 24, 3; *see also* 37 C.F.R.

§ 42.5(b)). Accordingly, in our Decision to Institute, we determined Petitioner has complied with the requirements of 37 C.F.R. § 42.204 and, thus, should be accorded the filing date of May 1, 2018 (*see* 37 C.F.R. § 42.206(a)) (Dec. to Inst. 11–12).

In our Order we noted:

Neither the rules nor statute governing RPI disclosures prohibit updating RPI disclosures while maintaining a petition’s filing date (*see Lumentum Holdings, Inc. v. Capella Photonics, Inc.*, Case IPR2015-00739, slip op. at 5 (PTAB Mar. 4, 2016) (Paper 38); *Elekta, Inc. v. Varian Med. Sys., Inc.*, Case IPR2015-01401, slip op. at 6–10 (PTAB Dec. 31, 2015) (Paper 19) (“*Elekta*”). 37 C.F.R. § 42.206 does not foreclose the Board’s discretion to maintain a petition’s original filing date when a party amends its RPI disclosures because, under § 42.5(b), “[t]he Board may waive or suspend a requirement of parts 1, 41, and 42” — here, § 42.206’s filing date provisions — and “may place conditions on the waiver or suspension” (*see Elekta*, slip op. at 8 (addressing parallel provisions under 37 C.F.R. § 42.106))

(Paper 24, 2). We thus determined, “permitting Petitioner to add Dispersive Technologies, Inc., a wholly-owned subsidiary of Dispersive Networks, Inc., as a real-party-in-interest (RPI) while maintaining the original filing date is in the interests of justice” (*id.*).

“A petition for a post-grant review may only be filed not later than the date that is 9 months after the date of the grant of the patent or of the issuance of a reissue patent (as the case may be)” (35 U.S.C. § 321(c)). The ’815 Patent was issued August 1, 2017 (’815 Patent). Petitioner filed its Petition May 1, 2018. Thus, if Petitioner’s corrected Petition were to receive a new filing date, it would fall outside the nine-month time bar under 35 U.S.C. § 321(c).

Petitioner’s counsel, Mr. Chad D. Tillman, filed a Declaration stating his law firm, Tillman Wright, PLLC (“TW”) “[a]t the time the petition for

the PGR was filed, [Petitioner’s Counsel] did not represent Dispersive Technologies (‘DT’)” (Ex. 1013, 1). Prior to the filing of the Declaration, Mr. Tillman further set forth “TW represented [Petitioner] in the preparation and filing of the petition for the PGR, and all payment for and comment and instruction regarding the petition were received from [Petitioner]” (*id.*). Thus, we are not persuaded Dispersive Technologies, Inc., exercised actual control over Petitioner’s counsel, retained or paid counsel, or provided instructions or comments to counsel (*see* Ex. 1014).

Nonetheless, Patent Owner argues Petitioner “fails to establish that good cause exists to waive the requirements of 37 C.F.R. §§ 42.5 (c)(3) and 42.206, *et. al.*, and makes no attempt at such a showing” (PO Resp. 17).

Patent Owner asserts unlike in *Lumentum Holdings, Inc. v. Capella Photonics, Inc.*, Case IPR2015-00739, Paper 38 (Mar. 4, 2016), the Petition *when filed* did not correctly identify all RPIs (PO Resp. 17). In particular, Patent Owner asserts Petitioner’s argument that “DT did not exercise **actual control** over Petitioner’s counsel, or fund these proceedings, at the time the Petition was filed” is not required to find Dispersive Technologies, Inc., was an RPI at the time of filing (*id.* at 18). According to Patent Owner, omission of Dispersive Technologies, Inc., as an RPI was not “objectively reasonable or based upon an innocent mistake” (*id.* at 19).

Although a petition “may be considered only” if the petition “identifies all real parties in interest” (35 U.S.C. § 322(a)(2)) and a petition will not be accorded a filing date until the petition satisfies various requirements, including identifying all real parties in-interest (37 C.F.R. §§ 42.206, 42.204, and 42.8(b)(1)), the Board has held these requirements are not jurisdictional (*see Lumentum Holdings, Inc. v. Capella Photonics,*

Inc., IPR2015-00739, slip op. at 5 (PTAB Mar. 4, 2016) (Paper 38) (precedential)). As the Board in *Lumentum* explained, “§ 312(a) sets forth requirements that must be satisfied for the Board to give consideration to a petition, however, a lapse in compliance with those requirements does not deprive the Board of jurisdiction over the proceeding, or preclude the Board from permitting such lapse to be rectified” (*id.*; see also *Blue Coat Sys., Inc. v. Finjan, Inc.*, IPR2016–01444, slip op. at 10 (PTAB July 18, 2017) (Paper 11) (“[E]vidence [of failure to identify all real parties in interest] is, at best, suggestive [of] an issue that is not jurisdictional.”)). In permitting a petitioner to amend its identification of real parties in interest while maintaining the original filing date, panels of the Board have looked to whether there have been

- (1) attempts to circumvent the § 315(b) bar, and analogously, the § 325(b) bar or estoppel rules,
- (2) bad faith by the petitioner,
- (3) prejudice to the patent owner caused by the delay, or
- (4) gamesmanship by the petitioner

(see *Aerospace Communications Holdings Co. v. Armor All/Step Products Co.*, IPR2016–00441, slip op. 3 (PTAB June 28, 2016) (Paper 12)).

Patent Owner contends “[t]he Board should not waive the rule and permit Petitioner to retain the original filing date, because doing so would circumvent both the rule and the statutory time-bar of 35 U.S.C. § 321(c), prejudicing Patent Owner” (PO Resp. 17).

We may allow Petitioner to update its real parties in interest to add allegedly unnamed real parties in interest after institution (see *Proppant*

Express Investments, LLC v. Oren Techs., LLC, IPR2017-01917, Paper 86 (PTAB Feb. 13, 2019) (precedential)). The Board may, under 35 U.S.C. § 312(a) and for the same reasons, under 35 U.S.C. § 322(a), accept updated mandatory notices as long as the petition would not have been time-barred under 35 U.S.C. § 315(b) or 35 U.S.C. § 325(b) if it had included the real party-in-interest (see *Proppant Express*, IPR2017-01917, Paper 86). As the U.S. Court of Appeals for the Federal Circuit has recognized, it “is incorrect” to “conflate[] ‘real party in interest’ as used in § 312(a)(2) and § 315(b), and claim[] that ‘§ 312(a)(2) is part and parcel of the timeliness inquiry under § 315’” (*Wi-Fi One, LLC v. Broadcom Corp.*, 878 F.3d 1364, 1374 n.9 (Fed. Cir. 2018) (en banc)). “For example, if a petition fails to identify all real parties in interest under § 312(a)(2), the Director can, and does, allow the petitioner to add a real party in interest” (*id.*). “In contrast, if a petition is not filed within a year after a real party in interest, or privy of the petitioner is served with a complaint, it is time-barred by § 315(b), and the petition cannot be rectified and in no event can IPR be instituted” (*id.*). The same reasoning applies to Post-Grant Reviews (see, e.g., *Adello Biologics LLC v. Amgen Inc.*, PGR2019-00001, Paper 11 (PTAB Feb. 14, 2019) (precedential)).

Indeed, many post-*Lumentum* Board decisions indicate that a petition may be corrected after institution of trial to add a real party-in-interest if warranted without assigning a new filing date to the petition (see, e.g., *Proppant Express*, IPR2017-01917, Paper 86; *ZTE (USA) Inc. v. Fundamental Innovation Sys. Int’l LLC*, IPR2018-00425, slip op. at 4–8 (PTAB Feb. 6, 2019) (Paper 34); *T-Mobile USA, Inc. v. Vertical Connection Techs.*, IPR2018-01388, slip op. 16– 19 (PTAB Jan. 23, 2019) (Paper 14);

Tesco Offshore Services, Inc. v. Weatherford Tech. Holdings, LLC, IPR2018-01308, slip op. at 10–11 (PTAB Dec. 10, 2018) (Paper 19); *Merck Sharp & Dohme Corp. v. Mayne Pharma Int’l Pty Ltd.*, IPR2016-01186, slip op. at 3–6 (PTAB Dec. 13, 2017) (Paper 70); *Intel Corp. v. Alacritech, Inc.*, IPR2017-01392, slip op. at 23 (PTAB Nov. 30, 2017) (Paper 11); *Axon EP, Inc. v. Derrick Corp.*, Case IPR2016–00642, slip op. at 3 (PTAB Nov. 21, 2016) (Paper 17); *Xactware Solutions, Inc. v. Eagle View Technologies, Inc.*, IPR2016- 00586, slip op. at 4 (PTAB Nov. 2, 2016) (Paper 19); *see also* *AIT*, 897 F.3d at 1364 (Reyna, J., concurring) (“Section 312(a)(2) is akin to a pleading requirement that can be corrected.”)). The reasoning in *inter partes* reexamination is applicable to post grant reexaminations. Because we have the authority to allow Petitioner to update its naming of real parties in interest, we turn to considerations outlined above that other panels have considered.

Patent Owner asserts “it cannot be said that the omission of DT as a real party-in-interest in the Petition was objectively reasonable or based upon an innocent mistake” (PO Resp. 19 (citing *Reflectix, Inc. v. Promethean Insulation Technology, LLC*, IPR2015–00039, Paper No. 18, 14–15 (PTAB April 24, 2015))). Looking to the factors discussed above, we find no evidence in the record of an attempt by Petitioner to circumvent the 35 U.S.C. § 325 bar or estoppel rules or bad faith by the petitioner. Nor do we find any evidence of gamesmanship in the record. Petitioner added DT as an RPI prior to our Decision to Institute (*see* Paper 11).

In our Order regarding the addition of a real party-in-interest, we determined:

Dispersive Networks’s delay in identifying Dispersive Technologies, a wholly-owned subsidiary, as an RPI has no negative impact on the

“core functions” of the RPI requirement as outlined in Our Trial Practice Guide—i.e. assisting members of the Board in identifying potential conflicts and assuring proper application of the statutory estoppel provisions in future cases (*see* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,759 (Aug. 14, 2012))

(Paper 24, 3). More specifically, here, like in *Adello Biologics (Adello Biologics LLC*, PGR2019-00001, Paper 11, 4 (PTAB Feb. 14, 2019)), Dispersive Technologies is a wholly-owned subsidiary of Dispersive Networks. “[R]equiring a petition to identify all RPIs serves ‘to assist members of the Board in identifying potential conflicts, and to assure proper application of the statutory estoppel provisions’” (*id.* (citing Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756 48,759 (Aug. 14, 2012))).

“Requiring a petition to identify all RPIs also protects a patent owner from ‘harassment via successive petitions by the same or related parties,’ and prevents parties from having a ‘second bite at the apple’” (*id.* (citing Trial Practice Guide, 77 Fed. Reg. at 48,759)). Allowing Petitioner to add DT as an RPI serves this “core function” and moreover, secures a “just, speedy, and inexpensive resolution” of this proceeding (37 C.F.R. § 42.1). The potential prejudice to Petitioner if we were not to permit the amendment is drastic — “neither the statute nor the rule governing RPI disclosures is designed to award a patent owner such a windfall” (*Adello Biologics LLC*, PGR2019-00001, Paper 11, 3–4).

Cases cited by Patent Owner are distinguishable. In *Reflectix, Inc. v. Promethean Insulation Technology, LLC*, IPR2015-00039, Paper 18 at 19 (PTAB April 24, 2015), *Sirius XM Radio, Inc. v. Fraunhofer– Gesellschaft Zur Forderung Der Angewandten Forschung E.V.*, IPR2018–00681, Paper 12 at 7 (PTAB September 6, 2018), *Radware, Inc. v. F5 Networks, Inc.*, IPR2017–01249, Paper 10, at 5 (PTAB September 30, 2019), and

Gas Light Co. v. Bennett Regulator Guards, Inc., IPR2013-00453, Paper 88 (PTAB Jan. 6, 2015) it was a *subsidiary* that filed the Petition. In this PGR, Dispersive Technologies, Inc., is a wholly-owned subsidiary of Petitioner, Petitioner is *not* a subsidiary of Dispersive Technologies, Inc. Therefore, Patent Owner's contention based on these cases is not persuasive. Accordingly, in light of the reasoning above and the record before us and because the interests of justice favor allowing Petitioner to update its mandatory notice, amending its RPI disclosures to add Dispersive Technologies, Inc., without changing the filing date, we exercise our discretion to do so under 37 C.F.R. § 42.5(b).

B. Level of Ordinary Skill in the Art

The level of skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis (*Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991))).

Petitioner asserts that a person of ordinary skill in the art at the time of the invention “has at least a bachelor's degree in computer science or computer engineering with at least five years of experience in the field of computer networking” (Pet. 8 (citing Ex. 1006 ¶ 8)). Patent Owner does not address Petitioner's assertion regarding the education or experience of an ordinarily skilled artisan at the time of the invention (*see generally* PO Resp.).

We determine that Petitioner's description of an ordinarily skilled artisan as possessing a bachelor's degree in computer science or computer

engineering with at least five years of experience in the field of computer networking, is supported by the current record.

We note also that the applied prior art reflects the appropriate level of skill at the time of the claimed invention (*see Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001)).

C. Claim Construction

In a post-grant review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear (*see* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012); 37 CFR § 42.100(b)(2017)).³

Claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure (*In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007)). An inventor may rebut that presumption by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision (*In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994)). In the absence of such a definition, limitations are not to be read from the specification into the claims (*In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993)).

³ We note that the PTO changed the claim construction standard used in PGR proceedings (*see* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340 (Oct. 11, 2018); 37 C.F.R. 42.100(b)). As stated in the Federal Register notice, however, the new rule applies only to petitions filed on or after November 13, 2018, and therefore does not impact this case (*id.*).

Petitioner provides a claim construction analysis for the terms “edge device,” “cloud-computing network,” “cloud-computing service,” “communicatively coupling,” “central configuration point,” “gateway,” “deep-packet inspection engine,” “virtual machine edge device,” and “virtual machine gateway” (Pet. 11–16). Patent Owner disputed the interpretation of “edge device” but provides no claim construction and asserts no other claim terms requires an explicit interpretation, but rather “should be afforded their plain and ordinary meaning” (PO Resp. 13).

In light of the disputed issues and the record before us, we need not address any of these terms (*see Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Definiteness Under 35 U.S.C. § 112

The ’815 Patent must have “one or more claims particularly pointing out and distinctly claiming the subject matter” (35 U.S.C. § 112(b)). The definiteness requirement of 35 U.S.C. § 112(b) “secure[s] to the patentee all to which he is entitled” and “apprise[s] the public of what is still open to them” (*Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 373 (1996) (quotation and brackets omitted)). The Federal Circuit stated “[a] claim is indefinite when it contains words or phrases whose meaning is unclear” (*In re Packard*, 751 F.3d 1307, 1310, 1314 (Fed. Cir. 2014)). “[A] patent is invalid for indefiniteness if its claims, read in light of the specification . . . and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention” (*Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014)).

1. *Alleged Indefiniteness Under 35 U.S.C. § 112: Claims 1–6*⁴

Petitioner contends that claim 1, and the claims that depend from claim 1, are unpatentable under 35 U.S.C. § 112(b) as indefinite (Pet. 18–21). Specifically, Petitioner argues that “claim 1 is indefinite based on recitation of ‘setting another MP network flow parameter based on the optimal multipath network flow setting’” (*id.* at 18). According to Petitioner, “the specification of the ’815 Patent does not provide any clarity regarding this recitation” (*id.* at 19). Petitioner contends:

Although the ’815 Patent discloses that “[i]n cases where the application cannot be identified, an MP system can monitor the behavior of MP packet flows over time and attempt to derive the optimal settings for QoS” and that “these settings which were obtained through this slow learning method ... can be shared to all other edges in the network,” this does not seem to be applicable to the claim, as this disclosure only pertains to “cases where the application cannot be identified” and the claim clearly recites “utilizing a deep-packet inspection engine to identify an application and an application type in a MP network flow”

(Pet. 19). Petitioner argues “it is not . . . clear whether this step involves ‘setting another MP network flow parameter’ for ‘the [recited] multipath network flow[,]’ or ‘setting another MP network flow parameter’ for a different multipath network flow,” i.e., whether “another” modifies “multipath network flow” or “parameter” (*id.* at 20 (citing Ex. 1006 ¶ 60)). Thus, according to Petitioner, the claim “is amenable to two or more plausible claim constructions” and is not definite (*id.* 18–21 (quoting *Telebrands Corp. v. Tinnus Enterprises, LLC*, PGR2015-00018, Paper 75,

⁴ Petitioner appears to have omitted claim 6 from its identification of claims challenged as indefinite, but subsequently includes claims 6 in its analysis. Compare Pet. 6 with *id.* at 21. We proceed as if Petitioner had included claim 6 in its identification.

16 (PTAB Dec. 30, 2016) (citing *In re Packard*, 751 F.3d 1307, 1310 (Fed. Cir. 2014))).

Patent Owner responds that the argued limitation is definite (PO Resp. 22–32). According to Patent Owner, “[t]he grounds set forth in the Petition . . . did not cite any meaningful evidence that one of ordinary skill in the art would have had any difficulty determining, with reasonable certainty, the meaning of the above-quoted words and phrases, or that they were amenable to two or more plausible claim constructions” and thus, “impermissibly shifts the burden to demonstrate patentability to the Patent Owner” (*id.* at 23). We are not persuaded by Patent Owner’s contention as Petitioner set forth in its Petition that the claim “is indefinite in that it ‘contains words or phrases whose meaning is unclear,’ . . . ‘is amenable to two or more plausible claim constructions,’ . . . and ‘fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention’” (Pet. 20 (quoting *Telebrands Corp. v. Tinnus Enterprises, LLC*, PGR2015-00018, Paper 75, 16 (PTAB Dec. 30, 2016), which cites *In re Packard*, 751 F.3d 1307, 1310 (Fed. Cir. 2014); *Ex Parte Miyazaki*, 89 USPQ2d 1207, 1211 (PTAB Nov. 19, 2008) (precedential); *Nautilus*, 134 S.Ct. at 2123 (2014))).”

In our Decision to Institute, we determined “[t]he cited portions of the ’815 Patent do not discuss ‘setting another parameter’; rather, those portions describe updating or changing a parameter that is already set” (Dec. 20). Patent Owner argues however, an ordinarily skilled artisan would not need to resort to the contents of the specification to understand the meaning of the limitation; rather, “in the context of the ’815 patent, one of ordinary skill in the art would not perceive a substantive difference between ‘*setting another MP network flow parameter*’ and ‘updating’ or ‘changing’ a network flow

parameter” (PO Resp. 24 (citing Ex. 2033 ¶¶ 55–58)). Specifically, Patent Owner argues the limitation “based on the optimal multipath network flow setting” refers back to the previous limitation “determining an optimal multipath network flow setting that ensures a quality of service (QoS) parameter of the multipath network flow” (PO Resp. 27).

Claim 1 recites, with disputed limitations italicized:

determining an optimal multipath network flow *setting* that ensures a quality of service (QoS) parameter of the multipath network flow; and setting *another* MP network flow *parameter* based on the optimal multipath network flow setting

We agree with Patent Owner that one of ordinary skill in the art would understand “the optimal multipath network flow setting” recited in the “setting” limitation—“based on the optimal multipath network flow setting”—refers back to the recited “optimal multipath network flow setting” in the “determining” limitation. Petitioner does not dispute this (Pet. Reply 7).

Patent Owner next asserts because the claim recites “determining an optimal multipath network flow setting that ensures a quality of service (QoS) parameter of the multipath network flow,” “[b]y the plain language of the claim, the optimal multipath network flow setting ensures a particular quality of service (QoS) parameter” (PO Resp. 24 (citing Ex. 2033 ¶ 46)). Thus, according to Patent Owner “the meaning of the term ‘MP network flow parameter’ is clear” (*id.*). Claim 1 recites “determining an optimal multipath [(MP)] network flow *setting*” and “setting *another* MP network flow *parameter based on* the optimal multipath network flow setting” (’815 Patent Claim 1 (italics added)).

Patent Owner points to the Specification and Declaration of Dr. Nadar Mir for support that the limitation is not indefinite (PO Resp. 26–29 (quoting

'815 Patent 6:37–44, 9:25–54); Ex. 2023). Dr. Mir states “one of ordinary skill in the art would understand that ‘*MP network flow parameter*’ has the clear and defined meaning of an item of information associated with the multipath (MP) network flow” (Ex. 2023 ¶ 40).

We look to whether claim 1, when read in light of the specification fails to inform, with reasonable certainty, an ordinarily skilled artisan about the scope of the invention (see *Nautilus*, 134 S. Ct. at 2124; *Packard*, 751 F.3d at 1311).

Patent Owner contends the Specification’s disclosure of the “determining” step provides context for the “setting” limitation (PO Resp. 26). Patent Owner relies upon the following to disclose “determining an optimal multipath network flow setting that ensures a quality of service (QoS) parameter of the multipath network flow”:

In one example, **QoS can be ensured** for an application by utilizing a combination of path selection methods such as those provided supra, as well as, network scheduling, packet reordering and/or error correction. For example, when an **MP packet flow** is initiated, an edge device (e.g. edge device 108) can identify the application and determine the proper QoS methods to be applied for this type of flow. . . . Once the edge device determines the methods to be used, a **control message** can be sent to the gateway to ensure that the gateway (e.g. gateway(s) 106) in turn has **information as to how to treat the MP packet flow** (e.g. without having to do its own application identification)”

(*id.* at 27 (quoting '815 Patent 9:25–37); Ex. 2023 ¶ 44).

Patent Owner additionally points to the description shown in Figure 4 of embodiments of an example flow sequence **400** diagram for an MP packet flow:

peer **1** can be a client-side edge device and peer **2** can be a cloud-based gateway device. Peer **1** can transmit an MP INITIATE **402** to

peer **2**. MP CONTROL **408** (e.g. *control information* such as QoS *parameters*, treatment of data traffic flow *parameters*, etc.) can be exchanged between peer **1** and peer **2**

(*id.* at 27–28 (quoting ’815 Patent 6:37–44)).

Thus, the ’815 Patent describes identifying the application, determining the proper QoS methods, and once determined, sending a control message from the edge device to the gateway, the control message having control information such as QoS parameters and treatment of data traffic flow parameters.

Although Patent Owner admits the cited “portions of the specification do not use the exact same verbiage as used in the claims to describe the process,” according to Patent Owner, the Specification describes:

an optimal multipath network flow setting is initially chosen to satisfy the requirements of a particular QoS requirement. Peers within the network (*e.g.*, edge device and gateway) cooperate to implement the necessary settings for handling the multipath packet flow. More specifically, the edge [device] sends a “control message” that includes “***control information*** such as QoS ***parameters***, treatment of ***data traffic flow parameters***, etc.[”] Thus, the initial flow setting includes initial “flow parameters”

(PO Resp. 29–30 (quoting ’815 Patent 6:41–45) (citing Ex. 2033 ¶ 55)).

Patent Owner next points to the ’815 Patent’s description of an MP path selection method as disclosing “setting another MP network flow parameter based on the optimal multipath network flow setting”:

In the event the MP system (e.g. based on network conditions) and/or an administrator indicates that the methods should be ***changed***, the edge device can again signal the gateway with a ***control message***. The methods can be updated without interruption to the service or traffic. For example, upon receipt of the ***control message*** from the edge, the gateway can ***update*** the QoS methods of the flow without deleting the existing flow. As a result, the next packet to be sent can use the

updated scheduling policies and link selection methods that were transmitted without interruption. For example, an MP packet flow that is being load balanced and is **changed** to replication as loss increases in the network can load balance packets 1–n until the control message is received. Packet flow can be a sequence of packets from a source computer to a destination, which may be another host, a multicast group, or a broadcast domain. Accordingly, packets beginning with n+1 can begin to be replicated

(PO Resp. 28–29 (quoting ’815 Patent 9:38–54); Ex. 2023 ¶ 45). This disclosure of the ’815 Patent describes the edge device signaling the gateway with a control message and the gateway updating the QoS methods of the flow.

According to Patent Owner, the Specification therefore describes “the initial flow setting being applied to govern a particular flow of traffic on the network is modified” (*id.* at 30). As a result, Patent Owner argues, “the claim limitation at issue is not amenable to two plausible alternative interpretations” (*id.* at 31); rather, “the plain language of the claim itself makes it clear that the ‘*another MP network flow parameter*’ is directed to the same multipath network flow associated with the ‘*setting that ensures a quality of service (QoS) parameter*,’ as opposed to ‘a different multipath network flow’” (*id.* at 31–32 (citing Pet. 19–20)).

As set forth by Patent Owner, the ’815 Patent describes “when an MP packet flow is initiated, an edge device . . . can identify the application and determine the proper QoS method” (’815 Patent 9:28–31). The ’815 Patent further describes “[i]n the event the MP system . . . indicates that the methods should be changed, the edge device can again signal the gateway with a control message. The methods can be updated without interruption” (*id.* at 9:38–42). The claim recites, however, “setting *another* MP network

flow parameter *based on the optimal multipath network flow setting*” (’815 Patent Claim 1 (emphasis added)).

The parties agree that the term “setting another” should be understood in the context of the ’815 patent according to the term’s “plain and ordinary meaning” (Pet. 12, 24; PO Resp. 13). The parties disagree, however, on the scope of that plain and ordinary meaning. Although Petitioner does not provide an explicit interpretation of this term (*see generally* Pet., Pet. Reply), Petitioner argues “the phrase ‘another parameter’ can’t possibly refer to that parameter they just mentioned” (Tr. 13). Conversely, Patent Owner contends “‘setting another’ and ‘based on’ are common English language phrases that do not carry any particular meaning in the art, and have a clear meaning on their face” (PO Resp. 25). Patent Owner further contends “setting another multi-path network flow parameter would be understood by one of ordinary skill in the art as updating” (*id.* at 22). Patent Owner then argues an ordinarily skilled artisan “would have understood the claim term ‘*setting another . . . parameter*’ to encompass adjusting, changing, or updating the parameter” (*id.* at 26). According to Patent Owner, “‘setting another’ and ‘updating’ [—] it’s really a difference without a distinction” (Tr. 40; *see also id.* (“setting another parameter, updating a parameter . . . it all really means the same thing”)).

We determine an ordinarily skilled artisan would not understand the scope of the phrase “setting a parameter” to be commensurate with the scope of the phrase “setting *another* parameter” — such an understanding would read out the term “another.” Rather, applying the plain and ordinary meaning in light of the Specification of the ’815 Patent, we determine an ordinarily skilled artisan would have understood “setting another parameter”

as encompassing only setting a parameter other than the parameter previously referenced. Similarly, we determine an ordinarily skilled artisan would have understood “setting another MP network flow parameter based on the optimal multipath network flow setting” as encompassing only setting a MP network flow parameter other than the first MP network flow parameter, previously referenced. This understanding is consistent with the ’815 Specification.

Our understanding of the scope of the term “setting another” is further informed by relevant lay dictionaries discussing the plain and ordinary meaning of constituent terms “set” and “another” (see *Merriam-Webster’s Collegiate Dictionary* 51 (11th ed. 2007) (defining “another” as “different or distinct from the first one considered,” “some other,” or “being one more in addition to one or more of the same kind”) (Ex. 3003, 3); see also *Merriam-Webster*, “another” (2019) <https://www.merriam-webster.com/dictionary/another> (providing same definitions of “another”) (Ex. 3004); see *Microsoft Computer Dictionary* 476 (5th ed. 2002) (defining “set” as “to establish a particular condition”) (Ex. 3005, 3); see also *Merriam-Webster*, “set” (2019) <https://www.merriam-webster.com/dictionary/set> (defining “set” to encompass “to adjust (a device and especially a measuring device) to a desired position” with examples of setting the alarm for 7:00 or setting a thermostat at 68) (Ex. 3006); see also *Merriam-Webster’s Collegiate Dictionary* 1138 (11th ed. 2007) (providing the same definitions of “set”) (Ex. 3003, 4)).

Thus, although we credit Dr. Mir’s testimony that the disclosures teach “modifying the MP settings for packet flow ‘based on’ the initial load-balancing setting to a replication setting” (Ex. 2023 ¶ 47), the disclosures

relied upon by Patent Owner do not describe setting a parameter that is different or distinct from the optimal multipath network flow setting (or initial load-balancing setting) or any parameter. The *value* of the parameter may be distinct, but the *parameter itself* is not.

Petitioner argues the disclosure in the '815 Patent relied on by Patent Owner to support Patent Owner's interpretation, does not describe the "setting" being "based on the optimal multipath network flow setting" (Pet. Reply 16–17). Petitioner's declarant, Richard W. Conklin, states "this recitation [is] exceedingly unclear and [I] am unable to determine what functionality this recitation is intended to cover" (Ex. 1006 ¶ 58). Petitioner points to further description in the '815 Patent that describes an example method of traffic identification as support for its contention that the limitation could be construed as setting a parameter for another MP network flow:

An MP system can utilize an external deep packet inspection engine (and/or form of computer network packet filtering) to identify the application and application type of a given flow. This information can be used to determine the optimal MP packet flow settings to ensure the MP packet flow's QoS parameter. In cases where the application cannot be identified, an MP system can monitor the behavior of MP packet flows over time and attempt to derive the optimal settings for QoS. Future flows can be mapped to these new settings using IP address, port number, protocol, TOS/DSCP tag and destination hostname as the MP system learns optimal MP traffic parameters (Pet. 19 (quoting '815 Patent 7:51–62); Pet. Reply 8)).

This is the only disclosure identified in the Specification that discusses "optimal settings." We also note the disclosure describes optimal

MP *packet* flow settings as opposed to optimal MP *network* flow settings.⁵ This disclosure describes “[a]n example method of traffic identification” that can utilize a deep packet inspection engine “to identify the application and application type of a given flow” (’815 Patent 7:50–53). The deep packet inspection examines a data part of a packet and uses this information “to determine the optimal MP packet flow settings to ensure the MP packet flow’s QoS parameter” (*id.* at 7:54–56, 8:4–6). Future flows are then mapped to these new optimal MP packet flow settings as the MP system learns optimal MP traffic parameters (*id.* at 7:59–62). The ’815 Patent further describes “these *settings* which were obtained . . . can be shared to all other edges in the network” (*id.* at 7:62–8:1 (emphasis added)).

Thus, the ’815 Patent describes mapping “new optimal MP packet flow *settings*” for other future MP network flows and that these settings include MP traffic parameters. Indeed, the ’815 Patent describes using a deep packet inspection to identify the application and application type of a given flow and using that identification to determine optimal MP packet flow settings to ensure the MP packet flow’s QoS parameter, mapping future flows to these optimal MP packet flow settings, and sharing those optimal MP packet flow settings to other edges in the network. The ’815 Patent additionally describes that future flows can be mapped to these new *settings* as the MP system *learns optimal* MP traffic *parameters* and that these *settings* are obtained through a slow learning method such as neural

⁵ We also note, aside from the Brief Summary of the Invention and the claims, the ’815 Patent describes “MP packet flow settings” rather than “MP network flow settings” (’815 Patent, 1:63–65, claim 1).

networks. The '815 Patent further explains *sharing* of optimal MP packet flow *settings* with other edges.

None of the disclosures cited by either party explicitly discloses the limitation of claim 1 as recited. Thus, in light of this disclosure, we determine an ordinarily skilled artisan could construe the limitation as setting a parameter of another MP network flow parameter or setting another parameter of an MP network flow. As such, we determine an ordinarily skilled artisan could construe the limitation in two different ways in light of the Specification. Therefore, based on this record, we determine claim 1, read in light of the Specification fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. Claims 2–6, which depend from claim 1, are therefore also indefinite under 35 U.S.C. § 112(b). Accordingly, we have reviewed the entire record before us, and based on this record, we determine that Petitioner has shown by a preponderance of the evidence claims 1–6 of the '815 Patent are indefinite under 35 U.S.C. § 112(b).

2. Alleged Indefiniteness Under 35 U.S.C. § 112: Claim 6

Although we determine Petitioner has shown by a preponderance of the evidence claim 6 is indefinite based on its dependence from claim 1, we separately address the additional ground asserted by Petitioner. Claim 6 recites

The edge-gateway multipath method of claim 1,

wherein a software as a service (SaaS) application interacts with the edge device and the gateway to determine a value of a specified network characteristic communicatively coupling the SaaS application with the edge device and resetting the QoS parameter based on the value of the specified network characteristic

(’815 Patent 13:14–20). Petitioner contends that claim 6 is unpatentable under 35 U.S.C. § 112(b) as being indefinite (Pet. 21–22). Specifically, Petitioner argues

[c]laim 6 . . . [is] indefinite based on the recitation that ‘a software as a service (SaaS) application interacts with the edge device and the gateway to determine a value of a specified network characteristic communicatively coupling the SaaS application with the edge device and resetting the QoS parameter based on the value of the specified network characteristic’

(*id.* at 21). Petitioner argues the claim “appears to suggest that either a ‘value’ or a ‘network characteristic’ is communicatively coupling an application to an edge device,” and “it is not at all clear how either . . . could communicatively couple an application” (*id.* at 21–22 (citing Ex. 1006 ¶ 88)). Further, Petitioner contends “it would appear that either the recited value or recited network characteristic effects [the] resetting, but it is not clear how either a value or network characteristic could do so” (*id.* at 22 (citing Ex. 1006 ¶ 89)).

Patent Owner responds that the argued limitation is definite (PO Resp. 33–37). First, Patent Owner asserts “the plain and ordinary meaning of ‘a value of a specified **network** characteristic **communicatively coupling** the SaaS application with the edge device’ is that the **network** couples the SaaS application with the edge device, and not a ‘value’ or a ‘characteristic’” (*id.* at 33 (citing Ex. 2033 ¶¶ 60–61)). Patent Owner next argues “[b]ased on the plain language of the claim itself, one of ordinary skill in the art would understand that the plain and ordinary meaning of the . . . limitation in this regard is that **the SaaS application resets** the QoS parameter” (*id.* at 34 (citing Ex. 2033 ¶¶ 62–63)). According to Patent Owner, “[a]s evident from the plain language of the claim, the SaaS application ‘*interacts*,’

‘*determine[s]*,’ and ‘*reset[s]*’” (*id.* at 34 (citing Ex. 2033 ¶¶ 62–63)). Patent Owner further contends the Specification makes clear the claim is not indefinite (*id.* at 34–35).

In response, Petitioner argues “[a]s the claim is written, it would appear that either the recited value or the recited network characteristic effects such resetting” (Pet. Reply 21). Petitioner further argues “the grammatical structure of the claim suggests that this network which is performing the ‘communicatively coupling’ is also performing the ‘resetting [of] the QoS parameter based on the value of the specified network characteristic” rather than the SaaS application resetting the QoS parameter (*id.* at 21–22). Thus, Petitioner argues the claim is unclear whether “(i) the ‘a software as a service (SaaS) application interacts with the edge device and the gateway to ... reset[] the QoS parameter,’ or (ii) the ‘a software as a service (SaaS) application interacts with the edge device and the gateway ...[, and] reset[s] the QoS parameter’” (*id.* at 22).

In light of the ’815 Patent Specification’s disclosure and Dr. Mir’s testimony (Ex. 2023 ¶¶ 50–55), we determine that an ordinarily skilled artisan at the time of the invention would not have understood the claim to recite “either a ‘value’ or a ‘network characteristic’ is communicatively coupling an application to an edge device” as asserted by Petitioner (Pet. 21–22 (citing Ex. 1006 ¶ 88)). Nevertheless, the claim itself is unclear given its structure. Claim 6 recites:

a software as a service (SaaS) application ***interacts*** with the edge device and the gateway ***to determine*** a value of a specified network characteristic communicatively ***coupling*** the SaaS application with the edge device and ***resetting*** the QoS parameter based on the value of the specified network characteristic

(’815 Patent Claim 6 (emphasis added)). The claim has at least *three* different verb tenses and no helpful punctuation. Thus, it is unclear how the claim should be read, for example, if it should be read as one of the following three interpretations:

(1) the SaaS application interacts with the edge device and the gateway to determine a value of a specified network characteristic[,]

communicatively coupling the SaaS application with the edge device and

resetting the QoS parameter based on the value of the specified network characteristic;

(2) the SaaS application interacts with the edge device and the gateway

to determine a value of a specified network characteristic

communicatively coupling the SaaS application with the edge device and

resetting the QoS parameter based on the value of the specified network characteristic; or

(3) the SaaS application

interacts with the edge device and the gateway to determine a value of a specified network characteristic communicatively coupling the SaaS application with the edge device and

reset[s] the QoS parameter based on the value of the specified network characteristic,

(’815 Patent Claim 6 (edits added)). Patent Owner points to the Specification of the ’815 Patent for support (PO Resp. 35–36 (quoting ’815 Patent 10:5–29 (emphases added))).

The Specification describes as follows:

In one example, *SaaS applications may also directly interact with the*

software in the edge device (e.g. edge device **108** in FIG. **1**) or gateway(s) (e.g. gateway **106** in FIG. **1**). This can be done, for example, to query the health of the last-mile and ***to provision network bandwidth and characteristics in the last-mile to ensure QoS for the application***. The edge device and/or the gateway(s) regardless of their embodiments provide APIs (application programming interfaces) that a SaaS application, with suitable permissions, can use to determine how the ***last-mile from the edge device to the gateway*** (e.g. in both directions) is performing. With this information the SaaS application may throttle back bandwidth so that the application continues to operate without congesting the network further and yet function reasonably well. By default, when an end-user accesses an application (which may run anywhere in the public cloud), the edge device identifies the application and determines the proper ***QoS methods*** to apply for this type of flow. ***As noted in supra, this includes network scheduling, packet reordering and/or error correction*** which is determined by policies set in the Orchestrator (e.g. orchestrator **104** in FIG. **1**). ***The SaaS application may modify these policies dynamically*** to ensure that the end-user gets the best experience possible given the current last-mile characteristics

(’815 Patent 10:5–29 (emphasis added)). This disclosure describes the “SaaS application interacts with the edge device.” This disclosure further describes that the SaaS application can *determine* how the last mile from the edge device to the gateway is performing—provisioning network bandwidth and characteristics in the last-mile (*id.* at 10:8–16) and that *the edge device determines* the proper QoS methods to apply for this type of flow which may include network scheduling, packet reordering, and/or error correction *determined* by policies set in the Orchestrator (*id.* at 10:17–26). This disclosure does not describe “resetting the QoS parameter based on the value of the specified network characteristic.” “[T]he edge device identifies the application and determines the proper QoS methods to apply for this type of flow” (*id.* at 10:22–23). The SaaS may modify policies set by the Orchestrator, but the cited disclosures do not explain whether the QoS

parameter based on the value of the specified network characteristic is a policy or the result of applying a policy to specific data. Thus, in light of the description, we are persuaded an ordinarily skilled artisan, upon reading the claims in light of the Specification, would fail to be informed, with reasonable certainty, about the scope of the invention.

We have reviewed the record before us, and based on this record, we determine Petitioner has demonstrated by a preponderance of the evidence that claim 6 is indefinite under 35 U.S.C. § 112(b).

3. Alleged Indefiniteness Under 35 U.S.C. § 112: Claims 8–11

Claim 8 recites:

a gateway comprising a network node equipped for interfacing with another computer network utilizing different communication protocols, wherein the gateway is implemented with the cloud-computing service, wherein the gateway has no initial setup configuration, wherein the edge device passes an enterprise identification of the edge device and a local configuration to the gateway, wherein the gateway uses the initial setup configuration to automatically create multiple isolated configurations-per-enterprise, and wherein the gateway is deployed as a virtual machine gateway.

(’815 Patent 14:32–42).

Petitioner contends that claim 8, and the claims that depend from claim 8, are unpatentable under 35 U.S.C. § 112(b) as indefinite (Pet. 22–25). Specifically, Petitioner argues that

claim 8 is indefinite based on recitation of ‘a gateway comprising a network node equipped for interfacing with another computer network utilizing different communication protocols, . . . wherein the gateway has no initial setup configuration, [and] . . . wherein the gateway uses the initial setup configuration to automatically create multiple isolated configurations-per-enterprise’

(*id.* at 23). Petitioner argues “if ‘the gateway has no initial setup configuration[,]’ it is simply unclear how the gateway could possibly ‘use[] the initial setup configuration to automatically create multiple isolated configurations-per-enterprise’” (*id.* at 23 (citing Ex. 1006 ¶ 93)). Further, Petitioner contends the claim “seems to require that ‘the initial setup configuration’ is used . . . but it explicitly specifies that ‘the gateway has no initial setup configuration’” (*id.* at 24 (citing Ex. 1006 ¶ 93)).

Patent Owner responds that the argued limitation is definite (PO Resp. 37–42). In particular, Patent Owner argues “any alleged ‘contradiction’” in that the claim recites the gateway does not have an initial setup configuration, but then uses *the* initial setup configuration, “is superficial only” (PO Resp. 38). Rather, Patent Owner contends

The “*edge device*” . . . “*passes*” the “*enterprise-specific configuration data*” that it obtained from the “*orchestrator*” to the “*gateway*.” ***The “gateway” did not initially possess initial setup configuration, or enterprise-specific configuration data, it had to obtain it first from the “edge device.”*** It is clear from the face of the claim that the only configuration data recited as being possessed by the edge device, and thus the only configuration data that it shares with the gateway according to the claim language, is “***enterprise-specific configuration data***”

(PO Resp. 38 (citing Ex. 2033 ¶¶ 67–68; ’815 Patent 14:8–11)). Patent Owner points to recitations in the claim related to “enterprise-specific configuration data” (PO Resp. 39–40 (quoting ’815 Patent 14:3–12, 26–31, 36–41)); however, the claim does not tie the “enterprise-specific configuration data” to the “initial setup configuration” (’815 Patent Claim 8). For disclosure of “the gateway has no initial setup configuration,” Patent Owner points to the claims (PO Resp. 40).

Patent Owner further contends “*enterprise-specific configuration data*. . . is shared with the gateway (*id.* at 41 (quoting ’815 Patent 5:63–6:2) (citing Ex. 2033 ¶ 73)). The ’815 Patent describes “[e]nterprise-specific configuration data, including available gateways, can be downloaded. In step 306, the available **gateway(s) can be connected to by the entity in the cloud with the enterprise-specific configuration data**” (*id.* (quoting ’815 Patent 5:63–6:2)). Patent Owner further relies on description that “[t]he gateway can be a multi-tenant gateway wherein **multiple customers with edge devices** can connect to the same gateway without actually exposing any of their data to each other” (*id.* (quoting ’815 Patent 9:54–58)). This disclosure does not, however, indicate the gateway had no initial setup configuration or uses the initial configuration data to automatically create multiple isolated customers. Instead, the disclosure cited describes that the gateway can be a multi-tenant gateway, but does not describe using initial configuration data to create “multiple isolated configurations-per-enterprise.”

Claim 8, recites “the gateway has no initial setup configuration,” “a local configuration” is passed to the gateway, and “wherein the gateway uses the initial setup configuration to automatically create” (’815 Patent 14:32–41). Thus, even in light of the ’815 Patent Specification, the claim contradicts itself in reciting the gateway does not have an initial setup configuration, but then reciting the gateway uses the initial setup configuration. No antecedent is positively recited in claim 8. Although Patent Owner contends the gateway uses “enterprise-specific configuration data,” the claim does not recite the “enterprise-specific configuration” is the “initial setup configuration” especially in light of the “enterprise-specific

configuration being earlier recited as being used—“wherein the edge device communicatively couples with a gateway in the cloud-computing network based on the enterprise-specific configuration data” (’815 Patent, Claim 8).⁶

Accordingly, we are persuaded on this record that claim 8, in light of the Specification, fails to delineate the bounds of the invention, to a skilled artisan. Claims 9–11 depend from claim 8 (’815 Patent Claims). Therefore, we are persuaded on this record that claims 9–11, in light of the Specification, fail to delineate the bounds of the invention, to a skilled artisan.

We have reviewed the record before us, and based on this record, we determine Petitioner has demonstrated by a preponderance of the evidence that claims 8–11 of the ’815 Patent are indefinite under 35 U.S.C. § 112(b).

E. Asserted Grounds of Non-Statutory Subject Matter under 35 U.S.C. § 101 and Obviousness under 35 U.S.C. § 103

Petitioner asserted claims 1–5 and 7 are patent ineligible under 35 U.S.C. § 101 (Pet. 7, 85–90); claims 1, 2, and 5 are obvious over Twitchell, Ray, and Raleigh (*id.* at 6, 25–61); claim 7 is obvious over Twitchell, Ray, and Raleigh (*id.* at 7, 61–77); and claims 3–4 are obvious over Twitchell, Ray, Raleigh, Devine, and Dong (*id.* at 7, 78–84).

In our Decision to Institute, we found Petitioner had not shown it was more likely than not that it would prevail in showing (i) claim 1–5 and 7 are patent ineligible under 35 U.S.C. § 101 and (ii) claims 1–5 and 7 are obvious under 35 U.S.C. § 103 (Dec. to Inst. 13–17, 25–56). In its Petitioner Reply,

⁶ We note that claim 8 has several recitations of “a gateway” and thus, it is unclear if these are the same gateway and to which gateway “the gateway” refers.

Petitioner did not address any of these grounds (*see generally* Pet. Reply).

In the Oral Hearing, Petitioner abandoned the asserted 101 and 103 grounds:

JUDGE JIVANI: So let's march through claim by claim, section by section. Because we instituted seven grounds in our institution of this trial, as we read them in your petition.

So, ground 1 we said appeared to be a challenge on the basis of Section 101 in Claims 1 through 5, and 7. Are you continuing to seek a decision from the Board on that ground?

MR. DOERRE: **We are not continuing to seek a decision from the Board on any of the 101 or 103 grounds.**

JUDGE JIVANI: On any of the 101 or 103 grounds. So, in our Decision on Institution we instituted grounds 1, 5, 6, and 7, as we instituted them, which were your Section 101 and 103 challenges. And I understand your representation to us to be now that you do not seek to -- you do not seek decisions from this board on those four instituted grounds, 1, 5, 6, and 7; correct?

MR. DOERRE: That's correct.

JUDGE JIVANI: Very good. Counsel, that appears to leave Claim 7 unchallenged. Is that correct?

MR. DOERRE: That is correct . . . we are not pursuing that challenge (Tr. 33–34 (emphasis added); *see also* Pet 6–7 (setting forth numbered grounds)). Accordingly, in light of Petitioner abandoning its challenge to these claims under these grounds and of our findings and conclusion in the Decision to Institute, Petitioner has not shown by a preponderance of the evidence that:

claims 1–5 and 7 are patent ineligible under 35 U.S.C. § 101;

claims 1, 2, and 5 are obvious over Twitchell, Ray, and Raleigh under 35 U.S.C. § 103;

claim 7 is obvious over Twitchell, Ray, and Raleigh under 35 U.S.C.

§ 103; and

claims 3–4 are obvious over Twitchell, Ray, Raleigh, Devine, and Dong under 35 U.S.C. § 103.

F. Patent Owner’s Contingent Motion to Amend

We have concluded the challenged claims 1–6 and 8–11 are unpatentable. Therefore, we address Patent Owner’s contingent motion to enter proposed substitute claims 12–21 (Mot. to Amend 12–19, Appendix 3–5). For the following reasons, Patent Owner’s motion with respect to claims 12–21 is denied.

1. Procedural Requirements

In reviewing a motion to amend, we consider whether the motion meets the statutory and regulatory requirements set forth in 35 U.S.C. § 326(d) (2012) and 37 C.F.R. § 42.221 (2019) (*see Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) (precedential) (“*Lectrosonics*”)). That is, the patent owner must demonstrate the following: (1) the amendment proposes a reasonable number of substitute claims; (2) the amendment responds to a ground of unpatentability involved in the trial; (3) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter; and (4) the proposed claims are supported in the original disclosure of the patent (*see* 35 U.S.C. § 326(d) (2012); 37 C.F.R. § 42.221 (2019); *see also Lectrosonics* at 4–8).

We also consider unpatentability. In that regard, a patent owner “does not bear the burden of persuasion to demonstrate the patentability of [the

proposed] substitute claims” (*Lectrosonics* at 4 (citing *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017); *Bosch Auto. Serv. Sols. LLC v. Iancu*, 878 F.3d 1027 (Fed. Cir. 2017))). “Rather, as a result of the current state of the law and [U.S. Patent and Trademark Office] rules and guidance, the burden of persuasion ordinarily will lie with the petitioner to show that any proposed substitute claims are unpatentable by a preponderance of the evidence” (*Lectrosonics* at 4).

2. *Proposed Substitute Claims*

Patent Owner proposes the following substitute claims, relying on the originally filed application (Application Number 14,321,818) (Ex. 1002 1–35) (hereinafter, “’818 Application”) for support (see Mot. to Amend):

12. (Substitute for claim 1) An edge-gateway multipath method comprising:
 - providing an edge device in a local network communicatively coupled with a cloud-computing service in a cloud-computing network;
 - automatically detecting a set of wide area network (WAN) links connected directly to the edge device or via an intermediate router;
 - automatically measuring the bandwidth of the WAN links communicatively coupling the edge device with a central configuration point in the cloud-computing network;
 - downloading, from the central configuration point, an enterprise-specific configuration data into the edge device, wherein the enterprise-specific configuration data comprises a gateway information;
 - communicatively coupling the edge device with a gateway in the cloud-computing network, wherein the communicatively coupling of the edge device with the gateway comprises a

multipath (MP) protocol, and wherein the MP protocol is implemented by combining a set of multiple network paths into a composite connection that transmits a set of data packets from a single user packet flow across all paths simultaneously;

measuring an available bandwidth on each path of the set of multiple network paths between the edge device and the gateway;

utilizing a deep-packet inspection engine to identify an application and an application type in a MP network flow;

determining an optimal multipath network flow setting that ensures a quality of service (QoS) parameter of the multipath network flow; and

[setting another] updating the MP network flow [setting] based on the optimal multipath network flow setting.

17. (Substitute for claim 6) The edge-gateway multipath method of claim [1] 12, wherein a software as a service (SaaS) application interacts with the edge device and the gateway to determine a value of a specified network characteristic of a network communicatively coupling the SaaS application with the edge device, and [resetting] resets the QoS parameter based on the value of the specified network characteristic.
18. (Substitute for claim 8) An edge-gate ay multipath network system comprising:

an edge device in a local network communicatively coupled with a cloud computing service in a cloud computing network, wherein, upon installation, the edge device automatically detects a set of wide area network (WAN) links connected to the edge device, wherein the edge device automatically measures the WAN link attributes, wherein the edge device downloads, from an orchestrator, an enterprise-specific configuration data and a set of service chain rules, wherein the enterprise-specific configuration data comprises a gateway information, wherein the edge device is communicatively couple the orchestrator, and wherein the edge device

communicatively couples with a gateway in the cloud-computing network based on the enterprise-specific configuration data and the set of service chain rules, and wherein the communicatively coupling of the edge device with the gateway comprises a multipath (MP) protocol, and wherein the MP protocol is implemented by combining a set of multiple network paths into a composite connection that transmits a set of data packets from a single user packet flow across all paths simultaneously, wherein the edge device measures an available bandwidth on each path of the set of multiple network paths between the edge device and the gateway, and wherein the edge device utilizes a deep-packet inspection engine to identify an application and an application type in a MP network flow;

the orchestrator comprising a central configuration point in the cloud computing network, wherein the orchestrator receives a heartbeat communication from the edge device and communicates the enterprise-specific configuration data and the set of service chain rules to the edge device as a response;

a gateway comprising a network node equipped for interfacing with another computer network utilizing different communication protocols, wherein the gateway is implemented with the cloud-computing service, wherein the gateway has no initial setup configuration, wherein the edge device passes the enterprise-specific configuration data, comprising an enterprise identification of the edge device and a local configuration, to the gateway, wherein the gateway uses the [initial] enterprise-specific configuration data to automatically create multiple isolated configurations-per-enterprise, and wherein the gateway is deployed as a virtual machine gateway.

(Mot. to Amend Appendix). The additional substitute claims, claims 13–16 and 19–21, amend the claim dependencies of original claims 2–5 and 9–11 to depend from the new substitute claims 12 and 18, respectively (*id.*).

3. *Statutory and Regulatory Requirements*

We first address the statutory and regulatory requirements Petitioner does not dispute, then turn to the requirements the parties dispute. The first requirement is that the Motion to Amend propose a reasonable number of substitute claims (35 U.S.C. § 326(d)(1)(B)). “There is a rebuttable presumption that a reasonable number of substitute claims per challenged claim is one (1) substitute claim” (*Lectrosonics* at 4) (*see also* 37 C.F.R. § 42.221(a)(3) (amendment of the patent in Post-Grant Review)). The Petition challenges eleven (11) claims (*see generally* Pet.). The Motion to Amend proposes a total of ten (10) substitute claims (*see generally* Mot. to Amend). Of these, only three have substantive amendments (claims 12, 17, and 18) while the remaining claims (claims 13–16 and 19–21) change the claim dependencies to depend from the new substitute claims. Thus, we determine the number of proposed claims is reasonable.

The second requirement is determining whether the proposed amended claims respond to a ground of unpatentability involved in this trial (*see Lectrosonics* at 5). Patent Owner asserts “[t]he proposed substitute claims are responsive to one or more grounds of patentability at issue in the proceeding” (Mot. to Amend 3). Patent Owner contends “Petitioner has challenged the patentability of claims 1–6 and 8–11 on 35 U.S.C. § 112(b) grounds” and [t]he proposed amendments seek to further clarify the claim language, and remove any arguable doubt regarding the definiteness of these claims” (*id.* at 3–4). We determine each of the claim amendments responds to the ground of unpatentability asserted by Petitioner. In particular, the amendment to claim 1, now substitute claim 12, is directed to a 35 U.S.C. § 112(b) ground asserted by Petitioner (*see* Pet. 18–21); the amendment to

claim 6, now substitute claim 17, is directed to a second 35 U.S.C. § 112(b) ground asserted by Petitioner (*see* Pet. 21–22); and the amendment to claim 8, now substitute claim 18, is directed to a third 35 U.S.C. § 112(b) ground asserted by Petitioner (*see* Pet. 22–25). Thus, we determine Patent Owner’s proposed amended claims respond to a ground of unpatentability involved in this trial.

“A motion to amend may not present substitute claims that enlarge the scope of the claims of the challenged patent or introduce new subject matter” (*Lectrosonics* at 6 (citing 35 U.S.C. § 316(d)(3); 37 C.F.R. § 41.121(a)(2)(ii))) (*see also* 35 U.S.C. § 326(d)(1) (regulation of Amendment of the Patent in Post-Grant Review); 37 C.F.R. § 221(a)(2)(ii) (amendment of the patent in Post-Grant Review))). We address these remaining requirements for each substitute claim individually.

a) Proposed Substitute Claim 12

Patent Owner contends substitute claim 12 does not enlarge the scope of original claim 6 (Mot. to Amend 4) and sets forth where the Specification provides support for the amended portions of the substitute claims (*id.* at 5–11).

(1) Alleged Enlarged Scope

Petitioner contends “the proposed amendment enlarges the scope of the claim by no longer requiring ‘setting another MP network flow parameter’, and instead allowing the claim to read on situations involving simply ‘updating the MP network flow setting’” (Pet. Opp. to MTA 5). Additionally, Petitioner contends changing “parameter” to “setting” enlarges

the scope because “the ’815 Patent itself appears to use the word ‘setting’ in a manner such that it is broader than simply ‘an item of information’” (*id.*).

We need not reach this issue because, as set forth below, we determine substitute claim 12 is indefinite under 35 U.S.C. § 112(b). Accordingly, we do not determine whether “updating the MP network flow setting based on the optimal multipath network flow setting,” recited in substitute claim 12, enlarges the scope of claim 1 of the ’815 Patent.

(2) *Alleged New Matter*

Petitioner does not contend amended claim 12 introduces new matter (*see generally* Pet Opp. to MTA). Nevertheless, we need not reach this issue because, as set forth below, we determine substitute claim 12 is indefinite. Accordingly, we do not determine whether substitute claim 12 introduces new matter.

b) *Proposed Substitute Claim 17*

Patent Owner contends substitute claim 17 does not enlarge the scope of original claim 6 (Mot. to Amend 4) and sets forth where the Specification provides support for the amended portions of the substitute claims (*id.* at 5–6, 12–14). Further, Patent Owner points to paragraphs 26 and 45 and Figure 8 of the ’815 Patent; claim 11 of the originally filed Specification (Ex. 1002 13–14); and the declaration of Dr. Mir (Ex. 2033 ¶ 169) for support (Mot. to Amend 12–13).

Substitute claim 17 recites:

wherein a software as a service (SaaS) application interacts with the edge device and the gateway to determine a value of a specified network characteristic of a network communicatively coupling the

SaaS application with the edge device, and [resetting] resets the QoS parameter based on the value of the specified network characteristic (PO Mot. to Amend, Claims Appendix 3). Petitioner does not provide any opposition directed to substitute claim 17 (*see generally* Pet. Opp. to MTA).

We determine the amendments do not enlarge the scope of the claim or introduce new subject matter. Specifically, addition of the words “of a network” to “a specified network characteristic” does not enlarge the scope of the claim; rather, the Specification describes the specified network characteristic is the characteristic of the specified network. Additionally, the changing of the term “resetting” to “resets” amends the claim to clarify the SaaS application resets the QoS parameter consistent with the Specification — “The SaaS application may modify these policies dynamically to ensure that the end-user gets the best experience possible given the current last-mile characteristics” (Mot. to Amend 13). Accordingly, proposed substitute claim 17 does not introduce new matter or enlarge the scope of the claims of the ’815 Patent.

c) Proposed Substitute Claim 18

Patent Owner contends substitute claim 18 does not enlarge the scope of original claim 8 (Mot. to Amend 4) and sets forth where the Specification provides support for the amended portions of the substitute claims (*id.* at 5–6, 14–19). Further, Patent Owner points to paragraphs 3, 4, 28, 41, 44 and 53 of the ’818 Application (Ex. 1002 18–19 ¶¶ 3–4, 25 ¶ 28, 29 ¶ 41, 30 ¶ 44, 34 ¶ 53); claims 16 and 19 of the originally filed Specification (Ex. 1002 15–16); and the declaration of Dr. Mir (Ex. 2033 ¶¶ 182–183) for support (Mot. to Amend 17–19).

Substitute claim 18 recites:

wherein the edge device passes the enterprise-specific configuration data, comprising an enterprise identification of the edge device and a local configuration, to the gateway, wherein the gateway uses the [initial] enterprise-specific configuration data to automatically create multiple isolated configurations-per-enterprise, and wherein the gateway is deployed as a virtual machine gateway

(PO Mot. to Amend, Claims Appx. 5).

(1) *Alleged New Matter*

Initially, we note the '815 Patent does not describe the “initial setup configuration” except in claim 8 and in the Brief Summary of the Invention ('815 Patent 2:4–8 (“The gateway may have no initial setup configuration. The edge device can pass its enterprise identification and a local configuration to the gateway. The gateway uses the initial setup configuration to automatically create multiple isolated configuration-per-enterprise”)).

Patent Owner identifies further description in the Summary of the Invention as support for the claim recitation “wherein the edge device passes the enterprise-specific configuration data, comprising an enterprise identification of the edge device and a local configuration, to the gateway” (Mot. to Amend 17). Specifically, Patent Owner points to paragraph 4: “The edge device can pass its enterprise identification and a local configuration to the gateway” (*id.* (citing Ex. 1002 19 ¶ 4)). Patent Owner further identifies the description in paragraph 3:

The method further includes the step of downloading, from the central configuration point, an ***enterprise-specific configuration data into the edge device***. The enterprise-specific configuration data includes the gateway information. The edge device is communicatively coupled with a gateway in the cloud computing network

(*id.* (citing Ex. 1002 19 ¶ 3)). This describes that the enterprise-specific configuration data, that includes gateway information, is downloaded into the *edge device*. Patent Owner further relies on the disclosure in paragraph 28 (*id.* (citing Ex. 1002 25 ¶ 28)). The disclosure refers to steps depicted in Figure 3, as illustrated below:

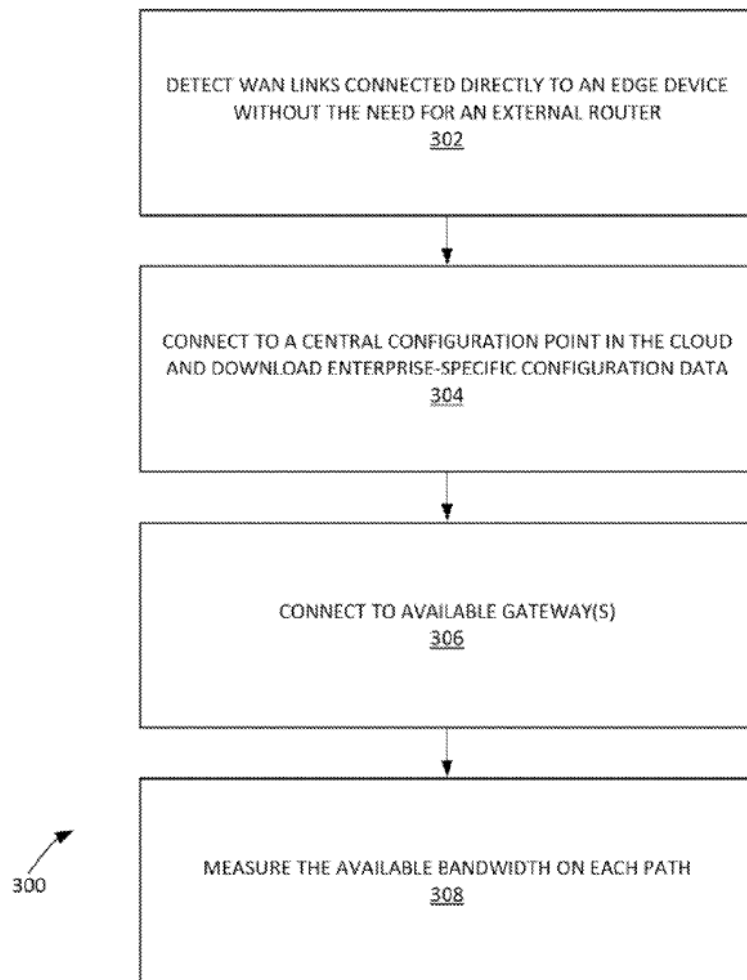


FIGURE 3

“Figure 3 depicts a process 300 of removing the requirement for an IT administrator to configure each individual device in an enterprise computing

network, according to some embodiments” (’815 Patent 2:20–23). The ’815 Patent further describes:

In step 302, WAN links that are connected directly to the edge device can be detected and measured without the need for an external router. In step 304, a central configuration point in the cloud can be connected to. Enterprise-specific configuration data, including available gateways, can be downloaded. In step 306, the available gateway(s) can be connected to by the entity in the cloud with the enterprise-specific configuration data. In step 308, an available bandwidth on each path can be measured

(Ex. 1002 25 ¶ 28). This disclosure describes the enterprise-specific configuration data, which includes available gateways, being downloaded into the device; however, this disclosure does not describe downloading the enterprise-specific configuration data into the gateway. Nor does it describe “the enterprise-specific configuration data, comprising an enterprise identification of the edge device and a local configuration,” as recited in substitute claim 18.

Patent Owner additionally identifies disclosure in paragraph 53 for support (Mot. to Amend 17). Paragraph 53 describes an example gateway “service chaining” process of Figure 10, used to enable new services:

In step 1002 of process 1000, a new service can be uploaded and configured in the orchestrator 104. In step 1004, an edge profile and/or configuration can be updated to indicate that it can receive the new service. In step 1006, ***the affected gateway(s) receive notification about new configuration and service that has to be enabled for the affected edges***. In step 1008, the gateway processes can configure information for the new service.

(Ex. 1002 34 ¶ 53). The disclosure does not describe “enterprise-specific configuration data comprising an enterprise identification of the edge device and a local configuration.” Although this paragraph mentions an edge

profile, it does not describe that the edge profile is the recited “enterprise identification of the edge device”; that an edge profile is part of the “enterprise-specific configuration data”; or that “the edge device passes” this edge profile to the gateway.

Petitioner contends “there is no support in the ’815 Patent for the newly added requirement that ‘the enterprise-specific configuration data’ downloaded from the orchestrator ‘compris[es] an enterprise identification of the edge device’” (Pet. Opp. to MTA 7). Specifically, Petitioner asserts “the ’815 Patent does not mention whether the enterprise identification of the edge device is ‘part of the enterprise-specific configuration data that is downloaded from the orchestrator’ or is ‘present prior to downloading of the enterprise-specific configuration data from the orchestrator” (*id.* at 8 (quoting Ex. 1020 187)). Petitioner thus argues:

because the ’815 Patent does not mention whether the enterprise identification of the edge device is “part of the enterprise specific configuration data that is downloaded from the orchestrator,” or is “present prior to downloading of the enterprise-specific configuration data from the orchestrator,” the newly added recitation that “the enterprise-specific configuration data” downloaded from the orchestrator “compris[es] an enterprise identification of the edge device” represents new matter

(*id.* at 8–9).

In response, Patent Owner asserts an ordinarily skilled artisan would understand “‘***enterprise specific configuration data***’ comprises enterprise identification information of the edge device” as set forth by Dr. Mir (PO Reply to Pet. Opp. to MTA 9 (citing Ex. 2033 ¶ 70)). Relying on Dr. Mir’s testimony, Patent Owner thus asserts the ’815 Patent “makes it clear” the recited “enterprise-specific configuration data obtained from the orchestrator ‘compris[es] ‘***an enterprise identification of the edge device***’ (***enterprise***

specific) and ‘a local configuration’ (configuration data)” (*id.* (citing Ex. 2033 ¶¶ 70, 182)). Patent Owner further contends an ordinarily skilled artisan would find it “clear” that “an edge device is associated with a ‘*local network*’” and “local networks” are “**enterprise specific**” (*id.* (citing ’815 Patent 13:55; Ex. 2033 ¶ 75)). Therefore, according to Patent Owner “information that identifies a particular enterprise necessarily identifies edge devices (and other devices) as being associated with that enterprise” (*id.*).

Dr. Mir testifies “the only configuration data mentioned in claim 8 as being possessed by the edge device, and thus the only configuration data that it could pass along to the gateway, is ‘enterprise-specific configuration data’” (Ex. 2033 ¶¶ 70–71). Paragraph 182 provides the same quotes of disclosures in the ’818 Application discussed above (*id.* ¶ 182; Mot. to Amend 17–18). Dr. Mir further points to the language of claim 8 that “an edge device is associated with a ‘local’ network” (citing ’815 Patent 13:55) and then testifies “[a]s would be readily apparent to one of ordinary skill in the art, ‘local’ networks, as the term is used in the specification of the ’815 [P]atent, are enterprise-specific” (Ex. 2033 ¶ 75). Dr. Mir then testifies an ordinarily skilled artisan would understand “use of the language ‘the edge device passes . . . a **local** configuration to the gateway’ is entirely consistent with the language of claim 8 involving passing **enterprise-specific** configuration data to the gateway” (*id.*).

Petitioner, however, argues Dr. Mir’s testimony contradicts Patent Owner’s assertion that the language is clear (Pet. Sur-Reply to PO Reply to MTA 9 (citing PO Reply. to Pet. Opp. to MTA 9)). Petitioner points to Dr. Mir’s testimony that he has “not rendered any opinion” and did not “opine” on where “the edge device get[s] the enterprise identification of the edge

device from” (*id.* at 10). Petitioner further argues Dr. Mir did not provide “an example of a piece of data that would comprise or that would be part of that enterprise-specific configuration data” but instead, “read from the claim language of the ’815 Patent” (*id.* at 10–11 (citing Ex. 1020 175)).

We agree with Petitioner that the ’815 Patent and the ’818 Application do not provide support for the amendments. Specifically, we determine neither the ’815 Patent nor the ’818 Application describes whether the enterprise specific configuration data downloaded from the orchestrator, comprises an enterprise identification of the edge device or instead, an enterprise identification of the edge device is, for example, data already present in the edge device. Indeed, when asked “where does the edge device get the enterprise identification of the edge device from,” Dr. Mir stated “I cannot opine on that” and admitted in the ’815 Patent “there is no direct mention or explicit mention of it which is part of it or not part of it. But a person of ordinary skill in the art would know . . . if this is - - identification, it always accompan[ies] the information that is directed to a - - to a destination” (Ex. 1020 187–188). We are not persuaded by this testimony because “accompanying” the information does not mean it is *part of* the information directed to a destination, i.e, information passed from the edge device to the gateway. Thus, we are not persuaded the enterprise-specific configuration data comprises the enterprise identification of the edge device. Moreover, “while the description requirement does not demand any particular form of disclosure, . . . or that the specification recite the claimed invention *in haec verba*, a description that merely renders the invention obvious does not satisfy the requirement” (*Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010)). Accordingly, we

determine the amendment “wherein the edge device passes the enterprise-specific configuration data, comprising an enterprise identification of the edge device and a local configuration” introduces new matter.

(2) *Alleged Enlarged Scope*

Initially, we note the ’815 Patent does not describe the “initial setup configuration” except in claim 8 and in the Brief Summary of the Invention (’815 Patent 2:4–8 (“The gateway may have no initial setup configuration. The edge device can pass its enterprise identification and a local configuration to the gateway. The gateway uses the initial setup configuration to automatically create multiple isolated configurations-per-enterprise”)).

Patent Owner identifies further description in the Summary of the Invention as support for the claim recitation “wherein the edge device passes the enterprise-specific configuration data, comprising an enterprise identification of the edge device and a local configuration, to the gateway” (Mot. to Amend 17). Specifically, Patent Owner points to paragraph 4: “The edge device can pass its enterprise identification and a local configuration to the gateway” (*id.* (citing Ex. 1002 19 ¶ 4)). Patent Owner further identifies the description in paragraph 3:

The method further includes the step of downloading, from the central configuration point, an ***enterprise-specific configuration data into the edge device***. The enterprise-specific configuration data includes the gateway information. The edge device is communicatively coupled with a gateway in the cloud computing network

(*id.* (citing Ex. 1002 19 ¶ 3)). This describes that the enterprise-specific configuration data, that includes gateway information, is downloaded into the *edge device*. Patent Owner additionally identifies paragraphs 4 and 44 of

the '818 Application to support the amendment “wherein the gateway uses the [initial] enterprise-specific configuration data to automatically create multiple isolated configurations-per-enterprise” (*id.* at 18–19 (citing Ex. 1002 19 ¶¶ 4, 30 ¶ 44)). Paragraph 44 discloses “[t]he gateway can be a multi-tenant gateway wherein multiple customers with edge devices can connect to the same gateway ***without actually exposing any of their data to each other***” (Ex. 1002 30–31 ¶ 44).

Petitioner argues:

This amendment broadens the claim by no longer requiring the “gateway [to] use[] [an] initial setup configuration to automatically create [the] multiple isolated configurations-per-enterprise”, and instead allows such creation to be done using data passed to the gateway from the edge device after being downloaded from the orchestrator. This change, from use of an initial setup configuration to use of subsequently received data, is clearly a change in the scope of the claim which broadens the claim by no longer requiring the use of an initial setup configuration

(Pet. Opp. to MTA 10). Dr. Mir’s testimony quotes the same paragraphs as support (Ex. 2033 ¶ 183).

Patent Owner contends:

Petitioner does not dispute or rebut the testimony of Dr. Mir that, based on the claim language itself, and when considered in the context of the specification of the '815 patent, one of ordinary skill in the art would have interpreted original claim 8 in a manner such that the only configuration data downloaded from the orchestrator, and possessed by the edge device, and thus the only configuration data that it can share with the gateway is “*enterprise-specific configuration data*”

(PO Reply to Pet. Opp. to MTA 11 (citing Ex. 2033 ¶¶ 67–76, 148)).

Moreover, Patent Owner argues:

Just like the “*initial configuration*,” the amended language requires that the gateway use the enterprise-specific configuration data to

create multiple isolated configurations-per-enterprise, and is thus “initial” configuration information to the same degree as before – it establishes (*i.e.*, **creates**) the isolated configurations in the first instance

(*id.* at 12).

Petitioner responds by repeating “[t]his change, from use of an initial setup configuration to use of subsequently received data, is clearly a change in the scope of the claim which broadens the claim by no longer requiring the use of an initial setup configuration” (Pet. Sur-Reply to PO Reply to MTA 11–12).

We agree with Petitioner that the amendments expand the scope of the claim. In particular, original claim 8 recites using an initial configuration to create multiple isolated configurations-per enterprise (’815 Patent Claim 8). Substitute claim 18 amends the claim to use enterprise-specific configuration data, not just the initial configuration.

Patent Owner has not identified any disclosure in the ’815 Patent or the ’818 Application that supports that it is the enterprise-specific configuration data that creates the multiple isolated configurations-per-enterprise. Indeed, aside from paragraph 4, which is part of the “Brief Summary of the Invention” and original claim 19, the ’818 Application does not describe creation of “multiple isolated configurations-per-enterprise,” as recited in substitute claim 18.

Accordingly, we determine substitute claim 18 broadens the scope of the claim. Thus, we determine Patent Owner’s Motion to Amend claim 8 fails to meet the statutory and regulatory requirements of 35 U.S.C. § 326(d) and 37 C.F.R. § 42.221. Substitute claims 19–21 depend from substitute

independent claim 18. Therefore, we determine substitute claims 19–21 also include new matter and broaden the scope of the claims.⁷

4. *Patentability of Proposed Substitute Claim 12*

We now turn to the patentability of proposed substitute claim 12. Petitioner alleges proposed substitute claim 12 is unpatentable as indefinite under 35 U.S.C. § 112(b) (Pet. Opp. to MTA 1–4). Substitute claim 12 recites “[setting another] updating the MP network flow [setting] based on the optimal multipath network flow setting” (Mot. to Amend Appendix, Claim 12). Petitioner contends “it is unclear what the antecedent basis is for the recitation of ‘the MP network flow setting’ and it is unclear what element this recitation is referring to” (Pet. Opp. to MTA 2). In particular, Petitioner argues if this recitation refers to the recitation of the “optimal multipath network flow setting” then “this limitation should be read as updating the setting based on itself” (*id.* at 2–3).

Patent Owner responds an ordinarily skilled artisan would understand “the updated setting is simply a modification of the initial or base setting” (PO Reply to Opp. to MTA 4). Patent Owner further argues “the updated setting is “*based on*” the properties associated with the initial setting, and the modifications thereto needed in order to meet QoS requirements under current network conditions” (*id.* at 5). Patent Owner then contends “as also

⁷ We additionally note substitute claim 18 has several typographical errors (e.g. “An edge-gate ay,” “protocolprotocol,” and “the edge device is communicately couple the orchestrator”); and recitation of “a gateway” two times, leaving confusion as to whether these are the same gateway or which of the recited “a gateway” is being referred to when “the gateway” is subsequently recited.

described in the specification . . . , both the initial setting and the updated setting are applied to different portions of the MP network flow in a manner such that the flow is not interrupted” (*id.*). Thus, according to Patent Owner, “in the context of the transition from one setting to another, the initial setting forms the basis (1–*n*) for the update to subsequent packets (*n* + 1) contained in the flow” (*id.*).

In response, Petitioner argues Patent Owner’s reasoning “focuses on whether an ‘updated setting is [] ‘based on’ the initial setting” (Pet. Sur-Reply to PO Reply to MTA 4). In the Oral Hearing, when Patent Owner was asked about the circular recitation advocated for—“updating the *optimal* MP network flow setting based on the optimal multipath network flow setting”—Patent Owner responded “[t]he update is based on the original setting. It’s simply a modification of the original setting” (Tr. 30–31). The claim, however, has not been amended to reflect that interpretation. Instead, the claim recites “updating the MP network flow setting based on the optimal multipath network flow setting” (Mot. to Amend Appendix, Claim 12). The term “the MP network flow setting,” in light of the claim recitation, would refer back to “an optimal multipath [(MP)] network flow setting” as no other MP network flow setting is recited. Thus, the claim limitation is circular—updating the settings based on the settings — and accordingly, the claim “contains words or phrases whose meaning is unclear” (*In re Packard*, 751 F.3d at 1310, 1314). For the same reason, we find the claim limitation “fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention” (*Nautilus*, 134 S. Ct. at 2024). Accordingly, this circular recitation of updating settings based on the settings renders the claim indefinite.

Given the foregoing, we determine Petitioner has shown by a preponderance of the evidence that proposed independent substitute claim 12 is indefinite. Substitute claims 13–17 depend from substitute claim 12. Therefore, we determine substitute claims 13–17 also are indefinite. Accordingly, we determine substitute claims 12–17 are not patentable.

III. CONCLUSION⁸

Petitioner has shown by a preponderance of the evidence,:

Claims 1–6 and 8–11 are indefinite under 35 U.S.C. § 112(b);

Petitioner has not shown by a preponderance of the evidence,:

Claims 1–5 and 7 are patent ineligible under 35 U.S.C. § 101;

Claims 1, 2, and 5 are obvious over Twitchell, Ray, and Raleigh under 35 U.S.C. § 103;

Claim 7 is obvious over Twitchell, Ray, and Raleigh under 35 U.S.C. § 103; and

Claims 3–4 are obvious over Twitchell, Ray, Raleigh, Devine, and Dong under 35 U.S.C. § 103;

Patent Owner has *not* met its burden of production to demonstrate that proposed substitute claims 17 and 18–21 comply with the statutory and

⁸ 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)).

regulatory requirements for substitute claims proposed in a motion to amend; and

Petitioner has shown by a preponderance of the evidence that proposed substitute claims 12–17 are indefinite under 35 U.S.C. § 112(b).

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 6 and 8–11 of the '815 Patent are unpatentable;

FURTHER ORDERED that Petitioner has *not* shown by a preponderance of the evidence that claims 1–5 and 7 of the '815 Patent are unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend is denied with respect to proposed substitute claims 12–21; and

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

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis/	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–5, 7	101	Eligibility		1–5, 7
1–6	112(b)	Indefiniteness	1–6	
6	112(b)	Indefiniteness	6	
8–11	112(b)	Indefiniteness	8–11	
1, 2, 5	103(a)	Twitchell, Ray, Raleigh		1, 2, 5
7	103(a)	Twitchell, Ray, Raleigh		7

3, 4	103(a)	Twitchell, Ray, Raleigh, Devine, Dong		3, 4
Overall Outcome			1–6, 8–11	7

Motion to Amend Outcome	Claim(s)
Original Claims Cancelled by Amendment	
Substitute Claims Proposed in the Amendment	12–21
Substitute Claims: Motion to Amend Granted	
Substitute Claims: Motion to Amend Denied	12–21
Substitute Claims: Not Reached	

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