

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CHARTER COMMUNICATIONS, INC.,

Petitioner,

v.

IARNACH TECHNOLOGIES LTD.,
Patent Owner.

IPR2024-01287
U.S. Patent No. 9,287,982

PETITIONER'S REPLY

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Ex. 1003	U.S. Patent Application Publication No: 2008/0069564 A1 (“Bernard”)
Ex. 1004	First Amended Complaint For Patent Infringement, Iarnach Tech. Ltd. V. Charter Comms. Inc. et al, Civil Action No. 2:24-cv-00230 W.D. Tex. (Dkt. No. 24)
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Ex. 1006	U.S. 8,831,425 (“Bernstein”)
Ex. 1007	MEF Technical Specification, MEF 6.1, Ethernet Services Definitions – Phase 2, April 2008
Ex. 1008	U.S. 8,160,448 (“Tsuge”)
Ex. 1009	Docket Control Order, Iarnach Tech. Ltd. V. Charter Comms. Inc. et al, Civil Action No. 2:24-cv-00230 W.D. Tex. (Dkt. No. 55)
Ex. 1010	Declaration in support of Pro Hac Vice Admission of Thomas Duston
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Claim Listing

Ref. #	Listing of Challenged Claims
1[preamble]	1. A service auto-configuration method of a DOCSIS Provisioning Of EPON (DPoE) system, comprising:
1[a]	the DPoE system acquiring a configuration file from a back-office management system, wherein the configuration file comprises both configuration information of an optical network unit (ONU) and configuration information of an optical line terminal (OLT) in the DPoE system;
1[b]	the DPoE system analyzing the acquired configuration file, and obtaining both the configuration information of the ONU and the configuration information of the OLT; and
1[c]	the DPoE system configuring the OLT locally according to the configuration information of the OLT
1[d]	and meanwhile configuring the ONU according to the configuration information of the ONU via a management channel between the OLT and the ONU;
1[e]	wherein, the method is performed in a process of ONU initialization; and
1[f]	wherein, when analyzing the acquired configuration file, the DPoE system further converts the configuration information of the ONU into a message format which can be identified by the ONU, and
1[g]	converts the configuration information of the OLT into a message format which can be identified by the OLT.
2	2. The method according to claim 1, wherein, the configuration information of the OLT is configuration information related to services opened by the ONU.
3	3. The method according to claim 2, wherein, the services opened by the ONU comprise one or more of Ethernet based line (E-LINE) services, Ethernet based tree (E-TREE) services and Ethernet based LAN (E-LAN) services; and the configuration information of the OLT comprises one or more of a virtual local area network (VLAN), a user port and a user media access control (MAC) address of the OLT related to the services opened by the ONU.
4[preamble]	4. A data over cable service interface system (DOCSIS) Provisioning Of EPON (DPoE) system, comprising

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(Continued)

Ref. #	Listing of Challenged Claims
4[a]	an acquisition unit, an analyzing unit and a configuration unit; wherein, during an process of an optical network unit (ONU) initialization,
4[b]	the acquisition unit is configured to acquire a configuration file from a back-office management system, wherein the configuration file comprises configuration both information of the ONU and configuration information of an optical line terminal (OLT) in the DPoE system;
4[c]	the analyzing unit is configured to analyze the acquired configuration file and obtain both the configuration information of the ONU and the configuration information of the OLT; and
4[d]	the configuration unit is configured to configure the OLT locally according to the configuration information of the OLT and meanwhile configure the ONU according to the configuration information of the ONU via a management channel between the OLT and the ONU.
5	5. The system according to claim 4, wherein, the analyzing unit is further configured to, when analyzing the acquired configuration file, convert the configuration information of the ONU into a message format which can be identified by the ONU and convert the configuration information of the OLT into a message format which can be identified by the OLT.
6[preamble]	6. A service auto-configuration network of a DOCSIS Provisioning Of EPON (DPoE) system, comprising
6[a]	a DPoE system, a back-office management system and a plurality of optical network units (ONUs);
6[b]	wherein, the DPoE system comprises an acquisition unit, an analyzing unit and a configuration unit; wherein, during an process of an optical network unit (ONU) initialization,
6[c]	the acquisition unit is configured to acquire a configuration file from a back-office management system, wherein the configuration file comprises configuration both information of the ONU and configuration information of an optical line terminal (OLT) in the DPoE system;

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(Continued)

Ref. #	Listing of Challenged Claims
6[d]	the analyzing unit is configured to analyze the acquired configuration file and obtain both the configuration information of the ONU and the configuration information of the OLT; and
6[e]	the configuration unit is configured to configure the OLT locally according to the configuration information of the OLT and meanwhile configure the ONU according to the configuration information of the ONU via a management channel between the OLT and the ONU; and
6[f]	the back-office management system is configured to: save the configuration file, and download the configuration file to the DPoE system, wherein the configuration file comprises the configuration information of the ONU and the configuration information of the OLT in the DPoE system.
7	7. The network according to claim 6, wherein, the back-office management system comprises a trivial file transfer protocol (TFTP) server configured to: receive a TFTP request initiated by the DPoE system, respond to that TFTP request, and download the configuration file to the DPoE system.
8	8. The network according to claim 7, wherein, the configuration information of the OLT is configuration information related to services opened by the ONU.
9	9. The network according to claim 6, wherein, the configuration information of the OLT is configuration information related to services opened by the ONU.
10	10. The network according to claim 9, wherein, the services opened by the ONU comprise one or more of Ethernet based line (E-LINE) services, Ethernet based tree (E-TREE) services and Ethernet based LAN (E-LAN) services; and the configuration information of the OLT comprises one or more of a virtual local area network (VLAN), a user port and a user media access control (MAC) address of the OLT related to the services opened by the ONU.

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(Continued)

Ref. #	Listing of Challenged Claims
11	11. The network according to claim 6, wherein, the analyzing unit is further configured to, when analyzing the acquired configuration file, convert the configuration information of the ONU into a message format which can be identified by the ONU and convert the configuration information of the OLT into a message format which can be identified by the OLT.

I. INTRODUCTION

Iarnach Technologies Ltd. (PO) resorts to confusion, overly formulaic evidentiary requirements and outright mischaracterizations of the underlying evidence in its bid to avoid cancellation. For example, PO is quick to declare that the prior art Bernstein and Tsuge references do not disclose a “service auto-configuration” method or “services opened by an ONU” but PO fails to articulate any meaning for those terms. PO also mischaracterizes the breadth of the evidence provided in the Petition for these elements. The Petition lays out ample evidence showing how both Bernstein and Tsuge disclose all the steps characteristic of a “service auto-configuration” method and enable the delivery to customers of the very same types of service provided by the ’982 Patent, namely, DOCSIS services.

PO improperly demands the evidence presented in the Petition be viewed through the narrowest of lenses and then cherry-picks certain citations while omitting other more relevant evidence that contradicts its positions, such as with respect to Tsuge’s disclosure of “converting” OLT configuration information. Even worse, PO contradicts determinations already made by the Board with respect to Tsuge’s back office-management system “saving” configuration files and Bernstein’s disclosure of “analyzing” configuration files in a last-ditch effort to save the ’982 Patent. These efforts must be rejected.

II. CLAIM CONSTRUCTION

A. “Service Auto-Configuration”

The Board’s Institution decision deemed a single phrase in the preamble of claim 1 limiting, holding that the phrase “a DOCSIS Provisioning Of EPON (DPOE) system” provided antecedent basis for the phrase “the DPOE system” elsewhere in the body of the claim. Paper 12 at 16. The Board, however, found that PO failed to support its claim that the preamble phrase “service auto-configuration” also was limiting. The antecedent basis provided by the phrase “a DOCSIS Provisioning Of EPON (DPOE) system” does not necessitate finding the whole of the preamble be limiting. Instead, each phrase of a preamble is adjudged independently viewing the claim as a whole. *See Cochlear Bone Anchored Sols. AB v. Oticon Med. AB*, 958 F.3d 1348, 1355 (Fed. Cir. 2020) (citing *TomTom v. Adolph*, 790 F.3d 1315, 1322-23 (Fed. Cir. 2015)). The Board challenged PO to establish in its Response “why the *entire* preamble of claim 1 would be limiting based on the antecedent basis provided by ‘a DOCSIS Provisioning Of EPON (DPOE) system.’” *Id.* at 16-17.

PO now asserts that the *entire* preamble must be deemed a limitation because it “is necessary to give life, meaning, and vitality to the claim.” Resp. at 18 (quoting *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002)). PO notes that the patent’s specification includes various examples

of the “automatic configuration” of the DPOE system. Resp., *id.* For example, PO asserts that the following patent language exemplifies what is meant by *service auto-configuration*: “the present document adds the configuration information about the OLT of the DPOE system in the configuration file, and completes the automatic configuration on the OLT and the ONU at the same time; [during] the process of the ONU initialization[.]” Resp. at 18-19 (quoting EX1001, 7:65-8:2).¹

PO’s arguments specify that *service auto-configuration* has three characteristics: (1) configuration by the DPOE system of both the ONU and OLT at the same time; (2) using a configuration file that includes configuration information of both the ONU and OLT; and, (3) configuration of the ONU and OLT occurs during ONU initialization. EX1016, ¶¶6-9.

In accord, the ’982 Patent depicts “a service auto-configuration method” in its Figure 3 as comprised of three steps (S301-S303), reproduced below:

¹ PO’s expert similarly contends that the preamble phrase “service auto-configuration” is synonymous with the following: “configuration of the OLT and the ONU at the same time through a configuration file including the configuration information of the ONU and the configuration information of the OLT in the DPOE system; [during] the process of the ONU initialization.” EX2008, ¶42 (quoting EX1001, 8:19-31).

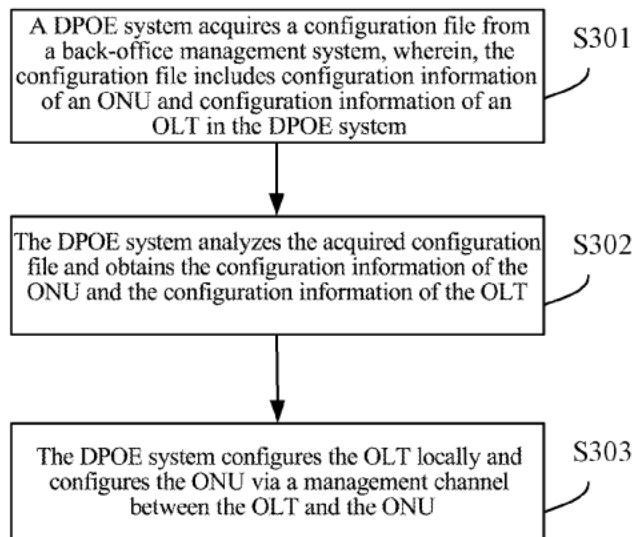


FIG. 3

EX1001 at FIG. 3.

Each of these automated steps is already reflected in the bodies of both Claims 1 and 6. EX1016, ¶¶10-14 (citing EX1001 at 8:45-49, 8:36-40 and 8:50-51 for claim 1 and 10:5-9, 9:39-42 and 9:35-36 for claim 6). And, Petitioner has shown in its Petition how each of these steps which form the service auto-configuration method or network are disclosed in the prior art. Pet., §§ VIII(A)(1), VIII(A)(5), VIII(C)(1) and VIII(C)(5).

Indeed, PO's expert agreed that the steps recited in Claim 1 "comprise a service auto-configuration method." EX1017 at 32:16-33:13. PO's expert acknowledged that the same was true for Claim 6. *Id.* at 35:5-16.

Ultimately, whether the Board finds the phrase “service auto-configuration” limiting is immaterial. Petitioner has shown that limitations in the body of the claim recite the automatic configuration of services, and such limitations are disclosed in the prior art. Thus, because any definition of the term “service auto-configuration” at best merely duplicates limitations already recited in the bodies of claims 1 and 6, whether the term “service auto-configuration” is a limitation does not affect the analysis of whether the prior art cited in the petition invalidates those claims.

III. PREPONDERANCE OF EVIDENCE SHOWS CLAIM 1-3 AND 5-11 UNPATENTABLE

A. Grounds 1 and 2

1. The Petition Details How Bernstein Teaches a “Service Auto-Configuration” Method and Network

As noted above, the phrase “service auto-configuration” at best encompasses three characteristics duplicated in other elements recited in the bodies of Claims 1 and 6. EX1016, ¶10-14. These three characteristics include: (1) configuration of the ONU and OLT at the same time; (2) a configuration file including configuration information of the ONU and configuration information of the OLT; and (3) configuration of the ONU and OLT occurring during an ONU initialization process. The Petition makes particular arguments showing how Bernstein teaches a “service auto-configuration” method in which a DPOE system automatically configures an ONU and OLT at the same time during a process of initializing an ONU

using a configuration file that includes both ONU and OLT configuration information. See Petition at Sections VIII(A)(1)(b-g) and VIII(A)(5)(b-g). Indeed, PO's Response does not contest that Bernstein teaches these steps, or that a *service auto-configuration* method or network requires anything further.

The particularity requirement set forth in 35 U.S.C. § 312(a)(3) requires only that “the petition identif[y], in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.”² The Petition identifies each claim challenged, the grounds upon which each claim is challenged, and the evidence with respect to each claim that supports that challenge. This is not, as PO suggests, a situation in which the Petitioner asks the Board to adopt arguments that could have been raised, but were not.

Patent Owner's further reliance on *Microsoft* is equally misplaced. There, the Petition sought to incorporate by reference arguments relating to anticipation into a separate ground challenging a different claim for obviousness. See *Microsoft Corp. v. FG SRC, LLC*, 860 F. App'x 708, 713 (Fed. Cir. 2021) (Microsoft argued elements of Claim 18 were “satisfied for the reasons set forth above with respect to [the anticipation of] claim 2[.]”) The Court rejected Microsoft's attempt to “rel[y]

² Nor does 37 C.F.R. § 42.22(a)(2) require any additional granularity.

on an unrelated ground in an unrelated section of its petition to ask us to deduce the existence of an obviousness argument from within its anticipation argument.” The Court concluded that Microsoft had failed to identify its obviousness argument with the required particularity. *Id.* Petitioner here has not similarly mixed and matched disparate legal grounds. All of the arguments here address the same ground for invalidity, appear in the same section of the Petition, and discuss the same claims (*i.e.* claims 1 and 6). Thus, the arguments here have been particularly asserted under §312(a)(3) and the Board may properly consider them.

2. The Petition Explains How Bernstein Teaches That The DPOE System Performs the Step of “Analyzing The Acquired Configuration File”

As the Board correctly noted, the Petition and Petitioner’s expert both explicitly state that such “analyzing” is performed as part of the Bernstein’s converting process:

Bernstein discloses that its DPoE system ***analyzes*** the acquired configuration file and obtains both configuration information for the ONU and configuration information for the OLT. Following downloading of the configuration file, Bernstein describes that DPON 40 includes ***a “DOCSIS-to-PON translator 84” that analyzes the configuration file***, obtaining configuration information of both the OLT and ONU, that it then converts “into associated PON parameters 63 that can be used by the OLT 18 and ONU 24.”

Pet. at 28 citing EX1005, ¶66 (citing EX1006, 3:53-63).³

³ This analysis in claim 1 is incorporated by reference into that of claims 5, 6 and 11.

The Board correctly concluded that there is no claim language precluding analysis during the process of conversion. Indeed, the claim explicitly recites that the two steps occur as part of a single process: “when analyzing the acquired configuration file, the DPOE system further converts[.]” Paper 12 at 33.

That a conversion process must include some level of analysis is axiomatic: one must first determine the format and content of a piece of information to translate or convert it into equivalent content in another format. For example, to convert text in one language into another, one must first analyze the text to determine its language (e.g. Spanish), analyze the specific words to ascertain both their content and context, and only then may it translate “casa” into “home.”⁴

Likewise, Bernstein discloses that the same is necessarily true of a process for converting DOCSIS parameters to PON parameters. Bernstein’s translator first “analyzes” the file to identify the parameters intended for the ONU and those intended for the OLT before converting such information in the configuration file from DOCSIS to parameters understandable by a PON. Pet. at 28 citing EX1005, ¶66 (citing EX1006, 3:53-63); EX1016, ¶21.

⁴ As another example, converting from one system of measurement to another, such as United States customary to metric (i.e. inches or feet to centimeters or meters), one must first determine the initial system, unit and value for the information (e.g. 1 foot) and apply the correct conversion methodology to convert the specific measurement to the desired system (e.g. 0.3048 meters). EX1016, ¶21.

Indeed, PO's expert confirmed conversions such as Bernstein's entail analysis. PO's expert acknowledges that because "there is no particular order specified in which the individual configuration setting[s] [in a DOCSIS configuration file] must be arranged, ... the file **must be 'analyzed'** so that the DPOE system can parse the contents of the file." EX2008, ¶¶51-52 (emphasis added); EX1017, 46:16-49:22 (confirming same). Bernstein uses such DOCSIS configuration files. Petition at 26 (citing EX1005, ¶62 citing EX1006 5:31-32) and 38. PO's expert offers no argument for why a POSA would conclude that Bernstein's DOCSIS configuration files differ from those with which he or she was otherwise familiar. PO's expert's conclusion that the analysis generally expected would not have occurred in Bernstein is baseless. EX1016, ¶¶22-27.

That the Bernstein DOCSIS-to-PON translation process includes analysis is further shown by Bernstein's description of Figure 4. That embodiment uses two translators (84a and 84b) to automatically configure both OTL and ONU contemporaneously. Pet. at 35-36 citing EX1005 at ¶82. That each translator discriminates between OLT and ONU parameters evidences their analysis of the contents of the configuration file. *Id.*; EX1016, ¶28. Patent Owner's argument wholly ignores these teachings and must be rejected.

PO's reliance on the decision denying institution in *Chongqing Optoelectronics Tech. Co. v. 138 East LCD Advancements Ltd.* is misplaced. IPR2023-

00476, Paper 9 at 12-14 (P.T.A.B Aug. 28, 2023). In *Chonqing*, the patent at issue recited two structural elements, “wiring lines for driving the circuit unit” and “a plurality of lead wiring lines provided on the extending portion[.]” *Id.* at 12. Accordingly, the Board rightly determined the claim required two different structural elements. Nothing in the challenged claim here, however, precludes performance of both the analysis step and the conversion step by functionality present in a single component. As the Board has already determined, the “analysis” step and “conversion” step claimed in the ’982 Patent claims is required to be part of the same process. Paper 12 at 33. No reason is advanced by PO for why a POSA would conclude such a process could not be effected by the same component. Petitioner has explicitly alleged that Bernstein’s “translator” both “analyzes” and “converts” configuration information as noted above.

3. The Petition Explains How Bernstein Teaches And/Or Renders Obvious Services Opened By the ONU

PO’s response fails to afford the phrase “services opened by the ONU” any construction; instead, it merely repeats the language of the claim in summarily alleging “neither [cited] section [of Bernstein] describes parameters or service requirements [that] relate to ‘services opened by the ONU.’” Resp. At 29. When questioned, PO’s expert testified this limitation simply encompassed the technical setup of common cable services subscribed to by the customer, including internet

and voice over IP services, that allows these services to be opened by the ONU associated with that customer:

Q. Did you come to a conclusion as to what the words services opened by the ONU means in preparing your declaration?

A. Typically, services opened by the ONU relates to the technical aspects of the services, say, requested by a customer. So a customer makes a request for particular services, the business office enters those into the system. A configuration file one way or another is generated that would allow those services to be opened. So services opened by the ONU relates to the technical setup of the ONU to allow for whatever services that were subscribed to to take place or to be initiated.

...

Q. Would internet service be an example of a service that a customer may request from within the context of a DPOE system?

A. Well, splitting hairs, but obviously if you subscribe to a service provider, you are going to get internet service, subscribing to particular services, for example, IPTV or a multicast service.

Q. Would voice over IP be an example of another service a customer may subscribe to?

A. Yes. The patent specifically gives sort of enterprise-type services as examples of enterprise-type services with regard to metro ethernet.

Id. at 72:7-20 and 73:9-22.

As PO acknowledges (Resp. at 29), the Petition discusses in Section 1[c] (which discussion was *explicitly* incorporated by reference in the discussion of claims 2, 8 and 9) Bernstein's disclosure of a "pipe" provided by the OLT to the ONU whose bandwidth is set to reflect the collective requirements for various ser-

vices, including data/internet services, video services and voice services, opened by the ONU. *See, e.g.*, Pet. at 31-32 (citing EX1005 ¶71 (citing EX1006, 5:59-6:57)); EX1016, ¶¶33-34. These are the very same services PO's expert acknowledged as examples of "services opened by the ONU." EX1017 at 72:7-73:22.

Additionally, in discussing of claim 1, the Petition and Petitioner's expert repeatedly made clear that "the configuration information of the OLT" relates to services opened by the ONU:

The configuration information included in file 102 concerns services opened by the ONU. For example, the information in TFTP configuration file 102 may be used to **configure Dynamic Bandwidth Allocation (DBA) 106 for Upstream (US) Quality of Service (QoS) between the OLT 18 and ONU 24.**" EX1006, 5:34-40; *see also* EX1005, ¶63 (citing EX1006, 3:49-52 (noting that the configuration of the OLT "*effectively allow[s] any of the services normally supported in a cable network to also be used in PON 10.*") [emphasis in original]

...

Specific parameters used for configuring the OLT and/or ONU relating to services requested to be opened by the ONU are further described below in elements 1[c]-[d].

...

Bernstein describes messages formatted for the OLT defining overall bandwidth and/or the relative priority **of each service opened by the ONU.** EX1005, ¶98 (citing EX1006, FIG. 8). For example, Bernstein describes configuring the OLT to provide a "pipe" to an ONU having a bit rate of 60.1 Mbps. *Id.*, (citing EX1006, 6:17-47). A **"DPON translation table 89"** associates different "services flows" of services opened by the ONU such that the OLT routes packets to the ONU according to the priority values in DPON translation table [DARK GREEN]. *Id.*, (citing EX1006, 6:17-39).

Petition at 27, 29 and 44.

PO argues that the Board cannot consider Petitioner's additional arguments with respect to Claim 1 because Petitioner only cross-referenced the discussion concerning Element 1[c]. PO's arguments fail to acknowledge that Claim 2 depends from Claim 1 and includes all of Claim 1's limitations and, thus, includes all of the arguments set forth with respect to those elements of Claim 1. The same is true of Claims 8 and 9, which each depend from Claim 6. Again, the Petition's discussion of Claim 6 incorporated all of the discussion with respect to each of Claim 1's limitations and, in turn, so too did the discussion with respect to Claim 8 and 9. As such, these additional arguments in the preceding paragraph also have been particularly asserted, and the Board may properly consider them. 35 U.S.C. §312(a)(3).⁵

⁵ In addition, the Petition specifically states that Bernstein uses prior art standard, DOCSIS-compliant configuration files. Pet. at 38 (citing EX1005, ¶86), 44 (citing EX1005, ¶97). The '982 Patent itself acknowledges that DOCSIS-compliant configuration files relate to services opened by an ONU. EX1001 at 1:33-2:47 (describe configuration file including service definitions such as "a VLAN identifier of the specific service" and the like). In other words, the '982 Patent concedes that DOCSIS configuration files set forth configuration information related to services open by the ONU. Because the Petition explicitly argues that Bernstein's system uses DOCSIS configuration files, Patent Owner's argument to the contrary must be rejected.

B. Ground 3 and 4

1. The Petition Sets Forth How Tsuge Teaches A “Service Auto-Configuration” Method and Network

As explained above, even if the phrase “service auto-configuration” is limiting, the Petition explains how the prior art teaches each aspect of a “service auto-configuration” method/network. The Petition describes how Tsuge teaches (1) configuration of the ONU and OLT at the same time; (2) a configuration file including configuration information of the ONU and configuration information of the OLT; and (3) configuration of the ONU and OLT occurring during an ONU initialization process. Specifically, the Petition states:

To the extent the preamble is limiting, as discussed herein, **Tsuge discloses an auto-configuration method** of a DOCSIS Provisioning Of EPON (DPoE) system. **Tsuge discloses a method for provisioning** DOCSIS services on ONU/OLT hardware in a “GE-PON” (*i.e.*, Gigabyte Ethernet PON), or any other type of PON. EX1005, ¶132 (citing EX1008, 6:47-55 and **14:40-15:22**).

Pet. at 60 (emphasis added). Despite PO’s mischaracterization of this passage, Tsuge at column 14, line 40 to column 15 line 22, for example, describes each of the three elements of a “service auto-configuration” where it discusses Tsuge’s DPOE system which, during an initialization process of ONU, obtains a configuration file, analyzes it and uses the information in the file to configure both the ONU and OLT at the same time. Pet. at 60; EX1016, ¶¶38-43. The Patent Owner’s argument to the contrary should be rejected for this reason alone.

In addition, because the elements of a “service auto-configuration” method and network are duplicated in elements recited in the body of claims 1 and 6, the Petition includes particular arguments showing how Tsuge teaches a “service auto-configuration” method in which Tsuge’s DPOE system acquires a configuration file, analyzes the acquired configuration file, and configures the OLT and ONU according to the respective configuration information in the configuration file OLT and ONU, all during an initialization process for an ONU. The Petition describes how each of these steps are performed by Tsuge’s DPOE system. See Petition at Sections VIII(C)(1) and VIII(C)(5). Neither PO nor PO’s expert challenges any of these aspects of claims 1 or 6 with respect to Grounds 3 and 4.

2. The Petition Explains How Tsuge Teaches That The DPOE System “Converts The Configuration Information Of The OLT Into A Message Format Which Can Be Identified By The OLT”

Both the Petition and Min Declaration repeatedly explain how Tsuge teaches converting OLT configuration information from the “CM setting information file” (*i.e.* a DOCSIS configuration file) into a message format which can be identified by the OLT. For example, the Petition notes that “Tsuge explains ‘[t]he contents of the setting parameters are converted into the ONU setting information signal 543 or the settings to the OLT itself or into both of them [.]’”) Pet. at 60, 62-63 (emphasis added); *see also id.* at 65-66 (“In the case where they are converted into the settings to the OLT itself, the settings are reflected to the OLT (step

934).”(Emphasis added). The Petition further cited its expert’s similarly discussion at paragraphs 132, 135, 137 and 141 of his Declaration (EX1005).

PO’s argument that OLT configuration information in Tsuge arrives in a format that need not be converted is contradicted by Tsuge’s disclosures. For example, both the Petition and the Expert Declaration cite to, among other things, the following disclosures in Tsuge:

[U]sing an algorithm shown in FIG. 13 which will be described in detail hereinafter, the OLT 101 sequentially interprets setting parameters included in the CM setting information file. **The contents of the setting parameters are converted into** the ONU setting information signal 543 **or the settings to the OLT itself** or into both of them (there is also a possibility that the contents of the setting parameters are not converted into any of them). **In the case where they are converted into the settings to the OLT itself**, the settings are reflected to the OLT (step 934).

EX1008, 14:67-15:15.⁶ This passage of Tsuge unequivocally shows that in Tsuge’s primary embodiment, OLT configuration information must first be converted **be-**

⁶ Sub-section 1[g] of Section VIII(C)(1) of the petition inadvertently cited an earlier usage in Tsuge of the phrase “the settings of the OLT itself” at 4:46-51 instead of the use of that phrase in Tsuge at 14:62-15:22, which is cited elsewhere in the analysis of claim 1 at element 1[c]. To be sure, the Board may consider this argument because it was explicitly made in connection with Ground 3, claim 1. In addition, this typographical error also may be corrected by the Board. *See e.g. Unified Patents, LLC v. Voice Tech Corp.*, IPR2020-0108, Paper 46 at 13, fn. 4 (P.T.A.B. December 13, 2021).

fore it can be “reflected”⁷ to the OLT. EX1016, ¶46. PO cannot simply ignore disclosures inconvenient to its arguments.

For all these reasons, the Petition set forth with particularity how Tsuge teaches converting OLT configuration information into a message format which can be identified by the OLT.

3. The Petition Explains How Tsuge Teaches and/or Renders Obvious a Back-Office Management System

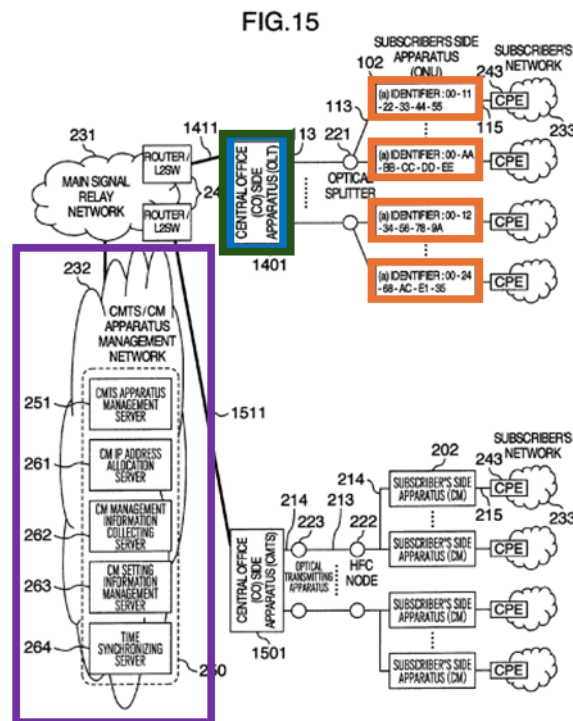
PO initially suggests that Petitioner’s position here contradicts that taken in the underlying litigation. Patent Owner mischaracterizes the parties’ positions in the underlying litigation. PO’s own expert conceded that Petitioner did not propose a construction in the underlying litigation that contradicts the construction employed in its Petition. EX1018 at 8 (acknowledging both parties asserted term “back-office management system” be given its “plain and ordinary meaning; no construction necessary.”)

PO suggests that the recited “back-office management system” must include a DHCP server, but in the same breath declares that there is no such requirement.

⁷ Contrary to the PO’s argument, the term “reflected” does not demand the information received remain unchanged. The term is used in Tsuge to refer to information that has clearly undergone conversion.. EX1016, ¶46; *see also* EX1008, 15:9-12 (noting that converted parameters are “reflected” to the ONU).

Response at 34. Nevertheless, the Petition explicitly notes that Tsuge teaches a back-office management system which includes a DHCP server.

PO concedes the Petition identifies the “CMTS/CM Apparatus Management Network” as the claimed “back-office management system” (Response at 35; see also Pet. at 61 (“Tsuge discloses a ‘CMTS/CM Apparatus Management Network 232’ comprising a conventional DOCSIS back-office management system [PURPLE] that, *inter alia*, stores and provides DOCSIS configuration files.”) The Petition further identified a CM IP Address Allocation Server 261 as part of the CMTS/CM Apparatus Management Network 232 (*i.e.* back-office management system).



Petition at 61 (citing EX1005, ¶134 (citing EX1008, FIG. 15) (annotated); *see also* EX1017 at 76:8-78:8 (discussing use of DHCP protocol by IP Address Allocation Server 261); EX1016, ¶¶51-53.

The Petition further explains how the CM IP Address Allocation Server 261 of Tsuge’s back-office management system uses DHCP to assign IP addresses used in retrieving stored configuration files:

Tsuge explains its method may be employed during the *initial* setting of the ONU. *Id.* (citing EX1008, 4:46-56. (“the OLT receives the *initial setting information* of the CM by using the address information and the file name of the TFTP server obtained by **the DHCP** and *makes initial setting* corresponding to its contents to the ONU by using the protocol of the PON interval (or, reflects it to the setting of the OLT itself).”))

Petition at 71 (*italics in original, bold added*); EX1016, ¶50.

Additionally, there is no dispute that a POSA would understand that a DHCP server functions to allocate IP addresses, and Tsuge’s inclusion of an “IP Address Allocation Server 261” as part of its “back-office management system” would indicate to a POSA the use of a DHCP server. EX1017 at 75:9-17 (PO’s expert acknowledging function of DHCP server) and 75:19-77:14 (noting inclusion of “IP Address Allocation Server 261”). Indeed, under the DOCSIS standard, the use of the DHCP protocol is required for the allocation of IP addresses; thus, a POSA would understand Tsuge’s “IP Address Allocation Server 261” to be a DHCP server. EX1016, ¶54. PO’s expert acknowledged at his deposition that the role of a DHCP server is to allocate IP addresses. EX1017 at 75:9-17.

For at least these reasons, even if the phrase “back-office management system” required a DHCP server, the Petition explained that Tsuge’s “back-office management system” included one.

4. The Petition Explains How Tsuge’s Back-Office System Save Configuration Files

Patent Owner grossly mischaracterizes the teachings of Tsuge in alleging that it fails to teach a back-office system that saves configuration files. The Petition explains:

Tsuge discloses a conventional DOCSIS back-office TFTP server [PURPLE] that **saves configuration files** [DARK GREEN] that contain both configuration information of the ONU [ORANGE] and of the OLT, and download that file to the DPoE system in response to a request for a configuration file:

FIG.11

551	1101	1102	1103	1104
	CM IP ADDRESS	CM SETTING INFORMATION MANAGEMENT SERVER IP ADDRESS	CM SETTING INFORMATION FILE NAME	ONU INTRINSIC IDENTIFIER
	10.1.2.3	10.100.1.253	default.cm	00-11-22-33-44-55
	10.1.2.4	10.100.1.253	default.cm	00-AA-BB-CC-DD-EE
	10.1.2.129	10.100.1.253	premium.cm	00-12-34-56-78-9A
	⋮	⋮	⋮	⋮

Petition at 80-81 citing EX1005, ¶171 (citing EX1008, 14:40-61, 15:59-62, Figs. 11 and 12 (annotated)).

Patent Owner’s allegation that column 1103 merely shows a file name that is obtained by the OLT misses the point: the file name and server address in columns

1103 and 1102 are provided during IP address allocation for an ONU (1101, 1104) so that the previously *saved* file (denoted by the file name, 1102) can be subsequently retrieved from the associated server (1102) and used to complete the ONU initialization process. Specifically, a TFPT session is created with the associated server (1104) during which the stored configuration having the associated file name (1103) can be retrieved. Pet. at 62-63 citing EX1005, ¶136 (citing EX100814:20-61, Fig. 9); EX1016, ¶¶57-61. The Board correctly identified this behavior as such in its institution decision. Paper 12 at 47-48. Even PO's expert admitted that TFPT servers store files. EX1017 63:22-64:6.

5. The Petition Explains How Tsuge Teaches And/Or Renders Obvious That The Configuration Information Relates to Services Opened By the ONU

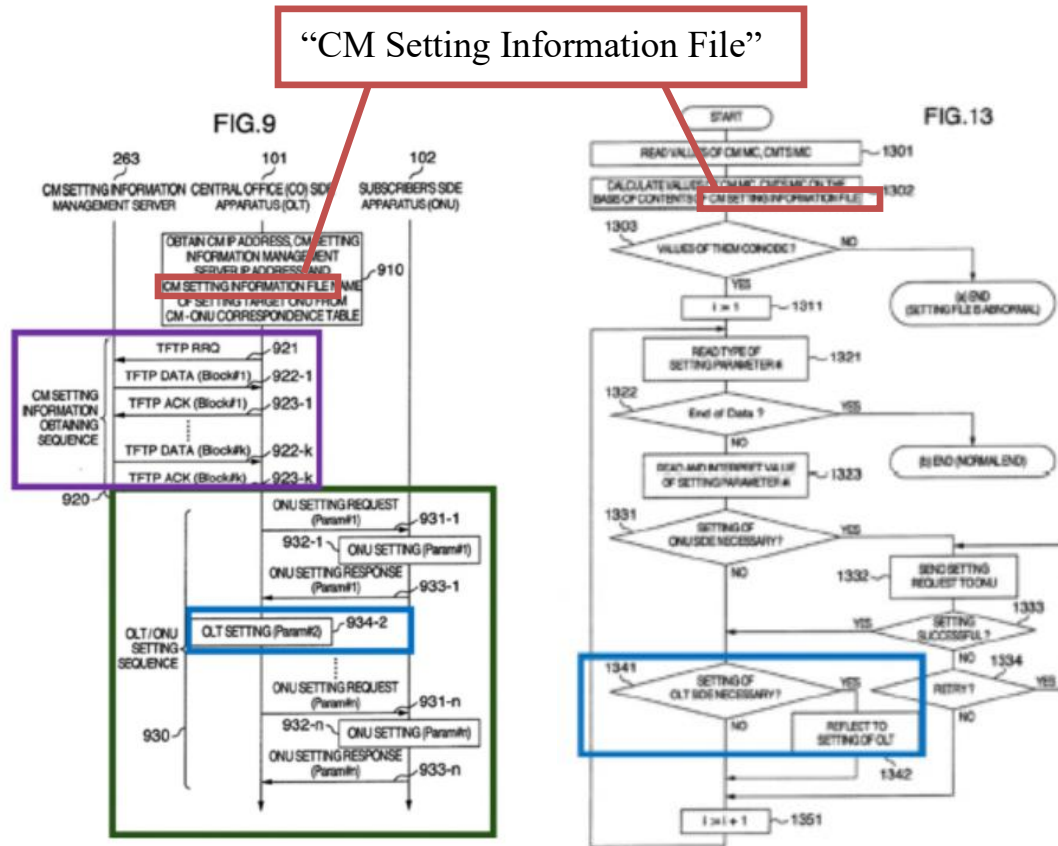
Petitioner again mischaracterizes the teachings of Tsuge in arguing that the OLT configuration information does not relate to services opened by the ONU. As explained above in Section III(A)(3), PO's expert acknowledged during his deposition that "services opened by the ONU" are simply those services to which a customer has subscribed, such as data, video and voice services. EX1017 at 72:7-73:22.

Section 1[c] of the Petition (explicitly cited in relation to claims 2, 8 and 9) explains that Tsuge's OLT configuration information relates to data services, i.e. "services opened by the ONU:"

The OLT 101 obtains a CM setting information file corresponding to a certain ONU by the CM setting information obtaining sequence 920 shown in FIG. 9. **The setting information of the upstream communication bandwidth of the service flow corresponding to the LLID allocated to the ONU is included in the CM setting information file.** Based on the DOCSIS standard, information such as continuous upstream maximum communication bandwidth, upstream maximum burst length, and upstream minimum reservation communication bandwidth is included in the upstream communication bandwidth setting. **Those upstream communication bandwidth setting information is stored as setting for the LLID into the OLT** by the OLT•ONU setting sequence 930 shown in FIG. 9 (step 1810).

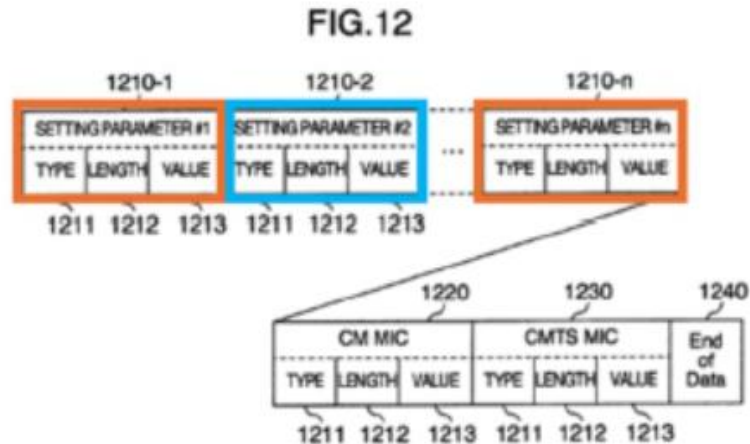
EX1008, 18:25-38 (cited at Pet. 67-68) (emphasis added); EX1016, ¶66. These “service flow” settings relating to various communication bandwidth settings “allocated to the ONU” are “OLT configuration information related to services opened by the ONU.”

Section 1[c] also cites Tsuge’s FIGS. 9 and 13, which each explain how Tsuge’s DPOE system initializes an ONU by obtaining a DOCSIS configuration file (“CM setting information file”) from a DOCSIS TFPT server and configuring both the ONU and OLT using the information in that file to configure the OLT to initialize these data services to be opened by the ONU. EX1005, ¶¶141-144:



Pet. at 66-67.

Tsuge’s use of the term “CM setting information file” in FIGS. 9 and 13, which refers to Cable Modem settings, confirms that Tsuge uses the DOCSIS configuration format. EX1016, ¶67. In Fig. 12, Tsuge further describes the format of the “CM Setting Information File” as using a DOCSIS-standard TLV (Type, Length, Value) format:



Pet. at 18 and 82; EX1016, ¶68.

PO’s expert describes the same format of in his declaration, noting that “In that [DOCSIS] specification, the configuration file ‘consists of a number of configuration settings (1 per parameter) each of the form: Type Length Value:’”



Figure 253 - Binary Configuration File Format

EX2008, ¶51 (citing EX2011 at 23). PO’s expert also acknowledged that Tsuge uses the same TLV format required by DOCSIS and that DOCSIS configuration files contain “configuration settings ... used to provision the ONU or the OLT” and that relate to services opened by the ONU. EX1017, 46:16-48:1, 52:3-53:5; EX1016, ¶69.

In addition, the Petition’s analysis of claim 1 elsewhere explicitly states that “Tsuge discloses a method for provisioning **DOCSIS services** on ONU/OLT hardware in a ‘GE-PON.’” Pet. at 60 citing EX1005, ¶132 (emphasis added). The Petition also explicitly states that Tsuge’s configuration files are “DOCSIS configuration files.”⁸ *Id.* at 61 (citing EX1005, ¶134). These discussions of claim 1 are necessarily incorporated into the challenge to claim 2 because claim 2 incorporates each of the elements of claim 1, as well as claim 8 and 9, based on their incorporation of claims 2 and 6 (which in turn incorporates the analysis of claim 1) EX1016, ¶¶70-71. Because the Petition explicitly describes Tsuge’s use of DOCSIS configuration files to configure service on the ONU, Patent Owner’s argument to the contrary must be rejected.

IV. CONCLUSION

For the reasons set forth above, the Petition shows by a preponderance of the evidence that Claim 1-3, and 5-11 are invalid and Petitioner respectfully requests that those claims be cancelled.

⁸ Also as discussed above, the ’982 Patent itself acknowledges that DOCSIS-compliant configuration files relate to services opened by an ONU. EX1001 at 1:33-2:47 (describe configuration file including service definitions such as “a VLAN identifier of the specific service” and the like). In other words, the ’982 Patent concedes that DOCSIS configuration files set forth configuration information related to services open by the ONU.

Dated: August 7, 2025

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

I hereby certify that this petition complies with the type-volume limitations of 37 C.F.R. §42.24 because it contains 5,244 words (as determined by the Microsoft Word word-processing system used to prepare the petition), excluding the parts of the petition exempted by 37 C.F.R. §42.24.

Dated: August 7, 2024

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CERTIFICATE OF SERVICE

The undersigned certifies that, in accordance with 37 C.F.R. §§ 42.6(e) and 42.105, a true and correct copy of the foregoing **“PETITIONER’S REPLY BRIEF”** was served on August 7, 2025 via electronic mail to the Patent Owner as indicated below:

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