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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

UNILOC 2017 LLC,[1]
Patent Owner.

Case IPR2018-00884
Patent 8,539,552 B1

Before SALLY C. MEDLEY, KARL D. EASTHOM, and SEAN P. O'HANLON, *Administrative Patent Judges*.

O'HANLON, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

[1] At the time the Petition was filed, Uniloc Luxembourg S.A. was the patent owner.

I. INTRODUCTION

A. Background

Apple Inc. ("Petitioner") filed a Petition for *inter partes* review of claims 1–25 ("the challenged claims") of U.S. Patent No. 8,539,552 B1 (Ex. 1001, "the '552 patent"). Paper 2 ("Pet."), 1. Uniloc Luxembourg S.A., a predecessor in interest of Uniloc 2017 LLC ("Patent Owner"), filed a Preliminary Response. Paper 6 ("Prelim. Resp."). On October 2, 2018, we instituted an *inter partes* review of the challenged claims on all grounds raised in the Petition. Paper 8 ("Institution Decision" or "Inst. Dec."), 28.

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 11, "PO Resp."), Petitioner filed a Reply to the Patent Owner Response (Paper 13, "Pet. Reply"), and Patent Owner filed a Sur-Reply to Petitioner's Reply (Paper 14, "PO Sur-Reply). An oral hearing occurred on July 15, 2019. The record includes a transcript of the hearing. Paper 19 ("Tr.").

In our Scheduling Order, we notified the parties that "any arguments for patentability not raised in the [Patent Owner] response will be deemed waived."[2] Nonetheless, Petitioner bears the burden to show, by a preponderance of the evidence, that the challenged claims are unpatentable. 35 U.S.C. § 316(e).

For the reasons that follow, we conclude that Petitioner has proven by a preponderance of the evidence that claims 1–17 and 23–25 of the '552

[2] *See* Paper 9, 5; *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012) ("The patent owner response . . . should identify all the involved claims that are believed to be patentable and state the basis for that belief.").

patent are unpatentable. It, however, has failed to meet its burden of proof regarding the unpatentability of claims 18–22.

B. Related Matters

The parties indicate that the '552 patent is not involved in any federal district court litigation or any other challenges before the Board. Pet. i; Paper 7, 2. However, it appears that the '552 patent is the subject of the following litigation:

> *Uniloc 2017 LLC v. Apple Inc.*, No. 1:18-cv-00890 (W.D. Tex. filed Oct. 18, 2018),
>
> *Uniloc 2017 LLC v. Apple Inc.*, No. 1:18-cv-00992 (W.D. Tex. filed Nov. 17, 2018), and
>
> *Uniloc 2017 LLC v. Apple Inc.*, No. 4:19-cv-01949 (N.D. Cal. filed Apr. 12, 2019).

C. The Challenged Patent

The '552 patent discloses a system and method for network based policy enforcement of intelligent client features. Ex. 1001, 1:7–10.

> In packet-based networks, intelligent end-user clients with little or no support and/or knowledge of the network can deliver many features and services. For networks to retain control over the features and services used by subscribers that use intelligent end-user clients, the networks need to be able to recognize signaling and call control messages and transactions that implement these features and services within the network. This is particularly important in next-generation IP telephony and IP multimedia networks where many basic and advanced services may be signaled, controlled, and/or delivered by intelligent end-user clients which are not owned or controlled by the network or service providers, thereby enabling the potential bypassing by the end user of service agreements or other subscription accounting mechanisms.

Id. at 2:61–3:7.

The '552 patent provides network-based policy enforcement to control access to and use of features and services. *Id.* at 3:20–23. A policy enforcement point within the core network, to which local networks seek access, is used to provide such enforcement. *Id.* at 7:32–34; *see also id.* at 3:48–61 (discussing an exemplary network architecture). The policy enforcement point is in the communications path of every call control and signaling message between any end-user client and any call control and signaling entity of the core network, and uses information regarding the sender and/or the intended recipient to determine whether access to the services and features of the core network is authorized. *Id.* at 7:34–52, 7:66–8:11. Figure 1 illustrates the network and is reproduced below.

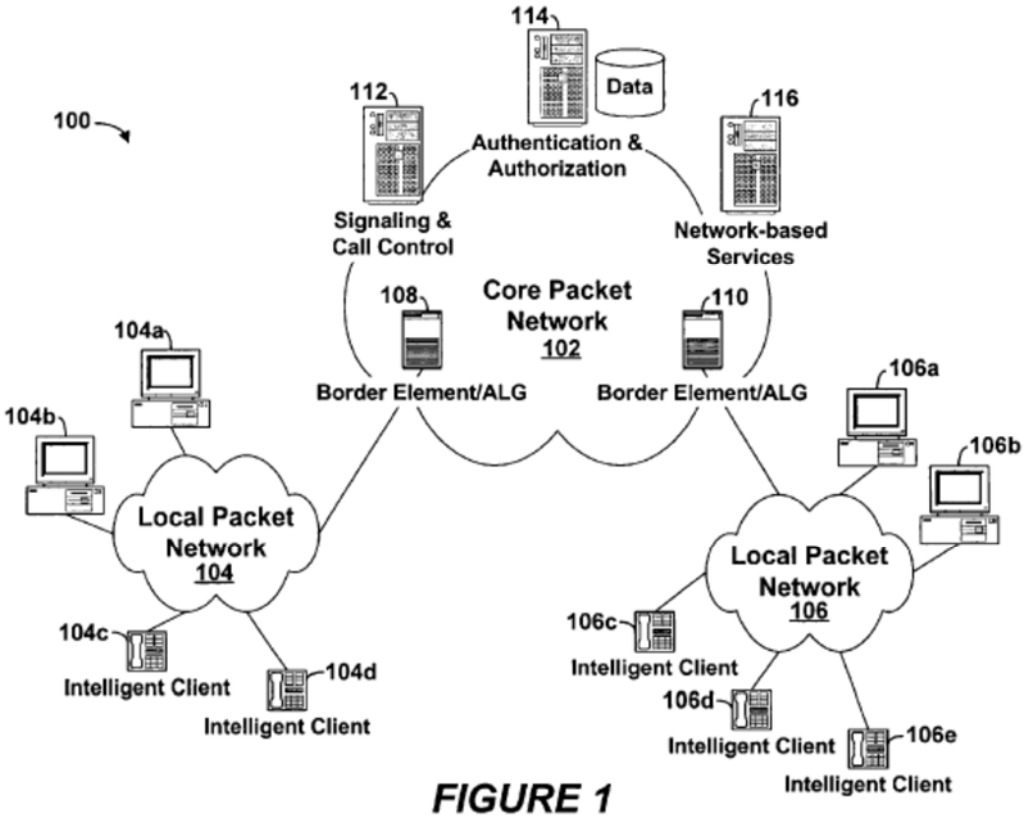

FIGURE 1

Figure 1 illustrates the '552 patent's network 100, which includes

> a core packet network **102**, and two local packet networks **104** and **106**, as well as intelligent end-user clients **104***a-d* and **106***a-e* associated with the local packet networks **104** and **106**. Access to the core packet network **102** is available through border elements **108** and **110**, such as a firewall or application layer gateway (ALG) device.

Id. at 3:50–56.

Figure 3, which is a flowchart depicting one embodiment of a method of network-based policy enforcement of intelligent client features (*id.* at 2:44–46), is reproduced below:

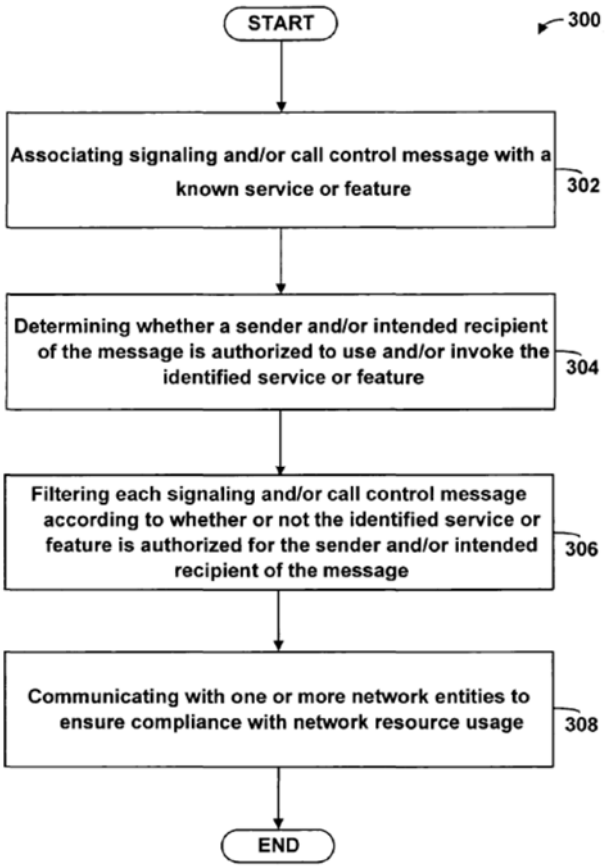

FIGURE 3

Figure 3 is a flowchart depicting one embodiment of a method 300 of network-based policy enforcement of intelligent client features. *Id.* at 8:54–

56. Initially, the policy enforcement point receives or intercepts signaling and call control messages. *Id.* at 8:56–58. At block 302, the method associates each signaling and/or call control message with a known service or feature. *Id.* at 8:60–63. The policy enforcement point then determines whether the sender and/or the intended recipient of the message is authorized to use and/or invoke the identified service or feature (block 304), and filters each signaling and/or call control message according to whether or not the identified service or feature is authorized for the sender and/or intended recipient (block 306). *Id.* at 8:63–9:3. Finally, the policy enforcement point communicates with and/or controls one or more network entities responsible for monitoring and regulating media data flow across network boundaries in order to ensure compliance with the usage authorization at block 308. *Id.* at 9:3–8.

D. The Challenged Claims

Petitioner challenges claims 1–25 of the '552 patent. Pet. 1, 6–7. Claims 1, 6, 18, 23, and 24 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below:

> 1. A method for controlling a plurality of services in packet-based networks, the method comprising:
>
> [1A] a network entity intercepting a signaling message associated with a call between a sender device of the message and an intended recipient device of the message, [1B] wherein the signaling message includes an indication of one type of the plurality of services which the signaling message is intended to invoke;
>
> [1C] the network entity making a determination of whether either the sender device or the intended recipient device is authorized to invoke the type of service indicated in the signaling message based in part on a device profile

> maintained in part on a remote enforcement point, [1D] wherein the type of service comprises at least one of caller-ID, call waiting, multi-way calling, multi-line service, and codec specification; and
>
> [1E] the network entity filtering the signaling message based on the determination such that the signaling message is transmitted to the intended recipient device if either the sender device or the intended recipient device is authorized to invoke the type of service indicated in the signaling message.

Ex. 1001, 19:60–20:14 (alphanumeric characters provided in brackets for reference in this Decision).

E. Instituted Grounds of Unpatentability

We instituted trial based on all asserted claims and grounds of unpatentability as follows (Inst. Dec. 6, 28):

No.	Reference(s)	Basis[3]	Challenged Claim(s)
1	Kalmanek[4]	35 U.S.C. § 103(a)	1–4, 6–10, 12–20, 22, and 23
2	Kalmanek and Shaffer[5]	35 U.S.C. § 103(a)	5 and 11
3	Kalmanek and Strathmeyer[6]	35 U.S.C. § 103(a)	21, 24, and 25
4	Kalmanek and Gleichauf[7]	35 U.S.C. § 103(a)	17

[3] The '552 patent was filed on September 25, 2003, prior to the date when the Leahy-Smith America Invents Act ("AIA") took effect.

[4] US 6,324,279 B1 (issued Nov. 27, 2001) (Ex. 1004, "Kalmanek").

[5] US 7,023,839 B1 (filed Aug. 19, 1999, issued Apr. 4, 2006) (Ex. 1005, "Shaffer").

[6] US 2001/0026548 A1 (published Oct. 4, 2001) (Ex. 1006, "Strathmeyer").

[7] US 7,412,598 B1 (filed Dec. 29, 2000, issued Aug. 12, 2008) (Ex. 1007, "Gleichauf").

Pet. 6–7. Petitioner submits a declaration of Dr. Aviel Rubin (Ex. 1003, "Rubin Declaration" or "Rubin Decl.") in support of its contentions in the instituted challenges.

II. ANALYSIS

A. Principles of Law

To prevail in its challenge to Patent Owner's claims, Petitioner must demonstrate by a preponderance of the evidence that the claims challenged in the Petition are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This burden of persuasion never shifts to the patentee. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person having ordinary skill in the art ("POSITA") would "hav[e] at least a bachelor's degree in electrical engineering, computer science or engineering, or in a related field, with at

least 2 years of industry or research experience with packet-based telecommunications systems." Pet. 5 (citing Ex. 1003 ¶¶ 31–33). "Patent Owner does not offer a competing definition for POSITA." PO Resp. 2.[8]

We find Petitioner's definition reasonable, and adopt it as our own.

C. Claim Construction

In an *inter partes* review filed before November 13, 2018, such as this one, a claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). The presumption may be overcome by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision. *See 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. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). Only those terms which are in controversy need be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d

[8] Although Patent Owner's Response uses Roman numerals in its pagination, we refer to Arabic numeral equivalents.

1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

Petitioner proposes constructions for two claim terms. Pet. 8–10. Patent Owner asserts that no claim construction is needed and disagrees with Petitioner's proposed constructions. PO Resp. 3–7. We discuss each of the terms identified by Petitioner below.

1. intercepting

Petitioner argues that the broadest reasonable interpretation of "intercepting" as used in claims 1, 6, 18, and 23 means "receiving," and that "[a] POSITA would readily understand that intercepting signaling messages, as described by the '552 Patent, is used to indicate the signaling is *received by* a network entity located between the endpoints of the call (i.e., between the caller and callee)." Pet. 8–9 (citing Ex. 1003 ¶ 35).

Patent Owner disputes Petitioner's interpretation that "intercepting" means "receiving." PO Resp. 4–7. Patent Owner argues that "[t]he term 'intercepting' cannot include simply 'receiving' a signaling message" because "the specification expressly distinguishes between 'received' and 'intercepted' messages." *Id.* at 4 (citing Ex. 1001, 8:56–58). Patent Owner argues that "intercepted" means "the communicat[ion]s *pass[] through* (and are read) by the policy enforcement point." *Id.* at 5. Patent Owner argues that "the claims themselves expressly differentiate[] a device 'intercepting' a message and the 'intended recipient' of that message." *Id.* at 6. Patent Owner argues that "a POSITA would understand that the entity *intercepting* a message would not be one of the intended recipients of that message." *Id.*

As we stated in the Institution Decision, Petitioner's and Patent Owner's arguments assert the same interpretation of *intercepting*, namely

that "a network entity intercepting a signaling message associated with a call between a sender device of the message and an intended recipient device of the message" means that the network entity receives the message and the network entity is not the intended end recipient device. *See* Inst. Dec. 8–9; *see also id.* (discussing the ordinary usage of the term). This interpretation is consistent also with how "intercepting" is used in the '552 patent, which uses the term interchangeably with "receiving." *See, e.g.*, Ex. 1001 8:56–58 ("Initially, signaling and call control messages are *received or intercepted* by the policy enforcement point." (emphasis added)); *see also id.* at 7:32–42 (explaining that the "policy enforcement point . . . is . . . *in the communications path* of substantially each and every call control and signaling message between any end-user client and any call control and signaling entity of the network **202** (including, possibly, another client device)."). We note further that the '552 patent repeatedly states that the network entity *receives* the setup messages, further indicating interchangeability of the terms. *See, e.g.*, Ex. 1001, Abstract ("The network policy enforcement point *receives* messages, associates the message with a known service, makes a determination as to whether a beneficiary of the service is authorized to invoke the service, and then filters the messages based on the determination." (emphasis added)), 9:28–30 ("The interface **402** [of network policy enforcement point **400**] *receives* signaling messages between two network end devices and passes the messages to the processor **404**."(emphasis added)). Finally, this interpretation is consistent with the prosecution history of the application resulting in the '552 patent, which reveals that the patent examiner suggested using the word *intercepting* in the claims to further clarify the applicants' intention to convey that "the

independent claims involve a network entity *receiving* and filtering messages that are ***sent between two end users***." Ex. 1002, 364–65 (first emphasis added); *see also id.* at 367–68 (distinguishing an intermediate entity intercepting a communication between two end user devices, as claimed, from a prior art reference in which the *intended end recipient device* (a service verification apparatus) receives and makes determinations regarding the signaling message).

Patent Owner criticizes our interpretation in the Institution Decision, arguing as follows: "the Institution Decision['s] 'fail[ure] to see the distinction between a network entity, positioned intermediate the sender device and end recipient device, "receiving" the message [] and "getting" the message [],['] . . . creates an independent ground to deny the Petition." PO Resp. 5 (third and fourth alterations in original). Patent Owner's conclusory argument fails to apprise us of error in our interpretation as set forth above and in the Institution Decision. Petitioner argues that "[a] POSITA would readily understand that intercepting signaling messages, as described by the '552 Patent, is used to indicate the signaling is *received by* a network entity located between the endpoints of the call (i.e., between the caller and callee)." Pet. 8. Similarly, we noted in the Institution Decision that Patent Owner's declarant opined that "[a]ll the definitions I found, both in standard dictionaries and in engineering and telecommunications dictionaries[,] all define intercepting as someone other than the intended recipient *getting* the message." Inst. Dec. 8 (emphasis added, alterations in original) (citing Ex. 2001 ¶ 15).[9] We fail to see, and Patent Owner fails to explain, a

[9] Dr. Easttom's declaration testimony interpreting "receiving" fails to consider the full disclosure and prosecution history of the '552 patent, as

distinction between a network entity, positioned intermediate the sender device and the intended end recipient device, "receiving" the message and "getting" the message, as both parties' interpretations indicate that the message is read by an entity other than the intended end recipient device of the message.

Patent Owner argues that the '552 patent distinguishes between receiving and intercepting, stating "[t]he '552 patent consistently and repeatedly attributes 'intercepting' only to the specific network entity tasked with initiating processes for 'control[ling] access to, and invocation of, features and services that may otherwise be delivered to subscribers without the knowledge or authorization of the network.'" PO Sur-Reply 3 (second alteration in original) (citing Ex. 1001, Abstract, 3:20–25). Initially, we note that neither the Abstract nor lines 20–25 of column three contains "intercepting"—to the contrary, as noted above, the Abstract states that "[t]he network policy enforcement point *receives* messages" (emphasis added). Patent Owner's arguments are also inconsistent with the disclosure and prosecution history of the '552 patent, as explained above. Moreover, Patent Owner fails to explain how the asserted distinction between receiving and intercepting differentiates the '552 patent from Kalmanek. For example, it appears that Kalmanek's network edge devices would "receive" the messages and its gate controllers would "intercept" the messages using Patent Owner's interpretations.

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explained above, and, thus is not entitled to substantial weight. *See, e.g.* Ex. 2001 ¶¶ 8–9; *see also* PO Resp. 6 (citing same). Additionally, Patent Owner hindered or prevented Petitioner from cross-examining Dr. Easttom, further undermining the weight given to Dr. Easttom's testimony. *See, e.g.*, Pet. Reply 2–6; Exs. 1011–24.

Patent Owner argues that "Petitioner suggests by its construction that the claimed 'network entity' may also itself be characterized as 'an intended recipient device of the message' if it is addressed by the sending client and used to receive and route the message onward." *Id.* at 6. This argument ignores the full language of claim 1, which recites "a network entity intercepting a signaling message associated with *a call between a sender device* of the message *and an intended recipient device* of the message." Ex. 1001, 19:62–64 (emphases added). By the language of claim 1, the recited "intended recipient device" must be the called device, not an intermediate network entity.

Accordingly, because it is consistent with the ordinary and customary meaning and with the disclosure and prosecution history of the '552 patent, we adopt Petitioner's proposed construction of a network entity "intercepting" a signaling message to mean the signaling message is received by a network entity located between the endpoints of the call.

2. device profile

Petitioner argues that although claim 1 recites "whether either the sender device or the intended recipient device is authorized to invoke the type of service indicated in the signaling message based in part on a device profile," "there is no 'device profile' described in the '552 Patent. Instead, there is a user profile for a user of a particular device." Pet. 9. According to Petitioner, "the '552 Patent consistently describes an authorization process that is (1) based on a *user* profile and (2) wherein services authorized for a device are in fact services authorized for the *user* of that device." *Id.* at 10. Thus, Petitioner reasons, the broadest reasonable interpretation of "device profile," as used in claim 1, refers to the profile of the user using the device

such that "making a determination of whether either the sender device or the intended recipient device is authorized to invoke the type of service indicated in the signaling message based in part on a device profile" means "determining whether a user of a particular device is authorized to invoke a service based on that user's profile." *Id.* (citing Ex. 1003 ¶ 57).

Patent Owner disagrees with Petitioner's interpretation, but does not submit a competing definition. PO Resp. 7–12.

We determine that we need not explicitly construe "device profile" to resolve the parties' controversies. *See Vivid Techs.*, 200 F.3d at 803; *Nidec*, 868 F.3d at 1017.

D. Overview of the Prior Art

1. Kalmanek

Kalmanek discloses a communications system in which resources are reserved and committed based on an authorized quality of service. Ex. 1004, 1:26–28. Kalmanek recognizes shortcomings in the known signaling architecture H.323, which is a signaling architecture appropriate for use in networks using connectionless best-effort delivery models. *Id.* at 1:30–67. Such shortcomings include the need for equipment associated with gatekeepers to be extremely reliable, difficulty in cost-effective scalability of gatekeeper-related equipment, and possible theft of service by bypassing the gatekeeper. *Id.* at 1:56–67.

Kalmanek uses a two-phase signal process in which messages for setting up the call are exchanged in one phase and messages for connecting the call are exchanged in a separate and distinct second phase. *Id.* at 12:39–45. "By separating the messages for setting up the call from the messages

for connecting the call, the [latter] messages can be exchanged end to end without being routed through the gate controllers that set up the call." *Id.* at 12:45–48. Because "the gate controllers are involved only during the initial start of the call but not during the call duration," the message load is reduced such that "the amount of memory need[ed] in the gate controllers is greatly reduced" and "the gate controllers can be constructed without the typically stringent requirements for reliability." *Id.* at 14:39–46.

Theft of service can occur when a telephone interface unit fails to acknowledge that a call has been initiated or a call has been terminated. *Id.* at 16:15–21, 43–52. Kalmanek overcomes these potential problems by using network edge devices to control call setup and termination. *Id.* at 16:21–27, 52–56.

The gate controllers can authenticate signaling messages and authorize requests for service so that communication services and certain service features are only provided to authorized subscribers. *Id.* at 6:49–52. Upon receiving a setup request message from a calling party, the gate controller can authenticate the identity of the calling party and authorize the service sought by the calling party. *Id.* at 6:52–55. Figure 1 illustrates Kalmanek's network and is reproduced below.

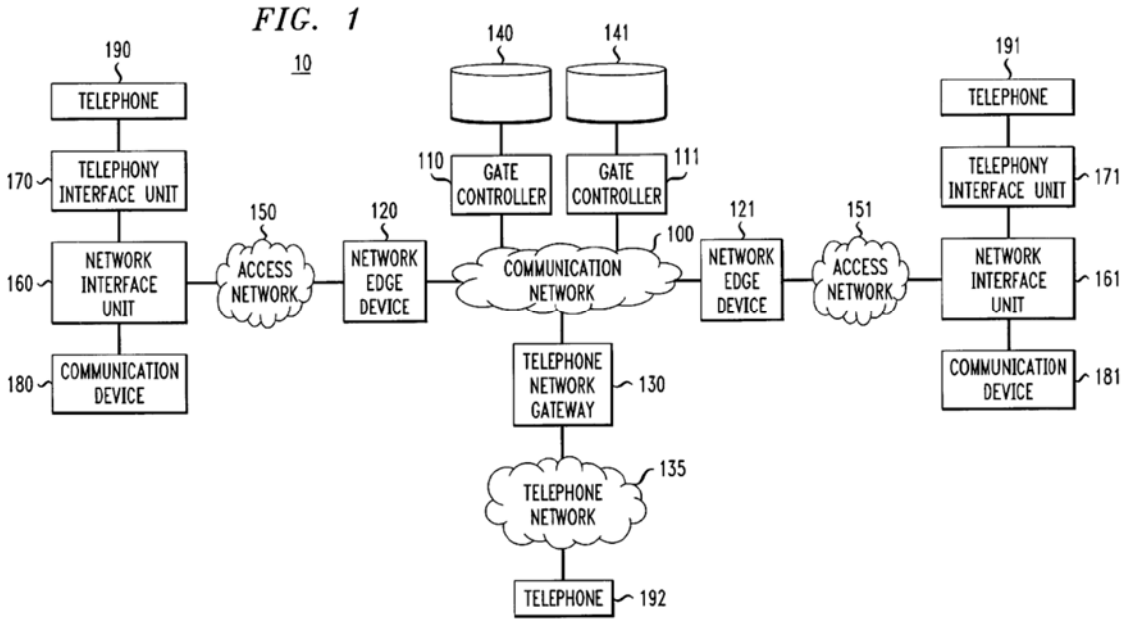

Figure 1 illustrates Kalmanek's network 10, which includes

> communication network **100** which is connected to gate controller **110** and gate controller **111**, network edge devices **120** and **121**, and telephone network gateway **130**. Gate controllers **110** and **111** are connected to database storage **140** and **141**, respectively. Network edge devices **120** and **121** are connected to access networks **150** and **151**, respectively. Access networks **150** and **151** are connected to network interface units **160** and **161**, respectively. Network interface units **160** and **161** are connected to telephone interface units (TIUs) **170** and **171**, respectively, and communication devices **180** and **181**, respectively. TIUs **170** and **171** are connected to telephones **190** and **191**, respectively. Telephone network gateway **130** is connected to telephone network **135** which, in turn, is connected to telephone **192**.

Id. at 4:34–49.

2. Shaffer

Shaffer discloses a telecommunications system that includes a bandwidth allocation server ("BWAS") that monitors system bandwidth

usage. Ex. 1005, 5:62–64. The BWAS compares the usage to a predetermined threshold value, and, if bandwidth usage exceeds the threshold, sends a command ordering the terminals connected to the system to adjust their coding hierarchies so that a lower speed codec is employed. *Id.* at 5:59–6:15. Network bandwidth can be allocated based on, for example, the quality of service requirements for each call. *Id.* at 5:26–33. The BWAS can downgrade codecs being used in existing calls such that they require less bandwidth. *Id.* at 9:27–54.

3. Strathmeyer

Strathmeyer discloses a packet network telephony call controller that is arranged to interface with a plurality of external call processing applications programs. Ex. 1006 ¶ 10. The call controller includes a call processing application computer and a call controller computer that perform various call control and processing application functions over a data network, and provide call information and control to a user of the applications computer. *Id.* ¶¶ 10, 12.

Although Strathmeyer describes its invention using systems based on the H.323 standard, Strathmeyer discloses that other protocols, including Session Initiation Protocol ("SIP"), can be used. *Id.* ¶ 13. Strathmeyer further describes these other protocols as being "functionally equivalent" to the H.323 protocol. *Id.*

4. Gleichauf

Gleichauf discloses a session-based services telephony protocol ("SSTP") for use in Internet Protocol ("IP") telephony that allows a user to add services during an IP telephony call session between two clients. Ex.

1007, 1:43–53, 2:12–14, 6:48–8:9. In the event that the client initiating the call has not subscribed to a requested service prior to initiating the call, a system server authenticates the client and adds the requested service to the list of services the client is authorized to use. *Id.* at 4:54–64, 9:1–46. One or both of the clients are then charged for use of the requested service. *Id.* at 9:47–10:2.

E. Challenge 1 – Kalmanek

Petitioner asserts that Kalmanek describes all elements of claims 1–4, 6–10, 12–20, 22, and 23. Pet. 18–56. In support of its showing, Petitioner relies upon the Rubin Declaration. *Id.* (citing Ex. 1003). We have reviewed the Petition, Patent Owner Response, Petitioner Reply, Patent Owner Sur-Reply, and evidence of record and determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–4, 6–10, 12–17, and 23 would have been obvious in view of Kalmanek and that Petitioner has set forth reasoning with rational underpinnings why it would have been obvious to modify the teachings of Kalmanek. Petitioner, however, has failed to show, by a preponderance of the evidence, that claims 18–20 and 22 would have been obvious.

1. Independent Claim 1

a. Preamble

Regarding the preamble, Petitioner argues that "*Kalmanek* discloses a method of using a 'gate controller' for controlling services such as codec specification and caller ID within 'packet telephony' networks." Pet. 18 (citing Ex. 1004, 3:40–45, 6:49–55, 10:13–19, 46:49–52). Patent Owner does not challenge this aspect of the Petition.

We find that the cited portions of Kalmanek support Petitioner's contentions.

b. Limitation 1A

Petitioner argues that Kalmanek's gate controllers 110, 111 in conjunction with network edge devices ("NEDs") 120, 121 correspond to the recited network entity. *Id.* at 21–22. Petitioner argues that "[t]he NED provides access to a particular service based on authorization provided by that NED's corresponding gate controller." *Id.* at 21 (citing Ex. 1004, 5:9–28; Ex. 1003 ¶ 54). Petitioner relies on Kalmanek's originating telephone interface unit ("TIU") and terminating TIU to correspond to the recited sender device and intended recipient device, respectively. *Id.* at 22–23 (citing Ex. 1004, 9:40–43; Ex. 1003 ¶ 55). Petitioner argues that "the gate controller and NED work together to intercept or receive a message, authorize a service level for the message, and implement the service level according to the message," and identifies "a call setup message" as the message that is intercepted. *Id.* at 23 (citing Ex. 1003 ¶¶ 50, 52–56). Petitioner argues that a person having ordinary skill in the art would understand Kalmanek's SETUP message to be a call setup signaling message, the intended recipient of which is "the device associated with the callee." *Id.* at 24 (citing Ex. 1003 ¶ 73).

Patent Owner argues that the call setup messages in Kalmanek are not intercepted by the gate controllers because the gate controllers are the intended recipients of the setup messages. PO Resp. 7–13; PO Sur-Reply 3–9. First, Patent Owner faults our finding in the Institution Decision that Kalmanek's setup message is passed through the gate controllers, arguing instead that "the gate controller of *Kalmanek* is the intended recipient of the

setup message, which then later, as the originator of the message, forwards it along to other recipients." PO Resp. 8–10. Patent Owner similarly argues that "[t]he claim language requires that the required 'signaling message' be between a sender and [an] intended recipient." *Id.* at 14. Continuing, Patent Owner argues that "*Kalmanek's* 'setup' messages are not messages sent between caller and callee." *Id.*

Patent Owner's argument fails to set forth any meaningful difference between "passing through" versus "receiving and forwarding." Furthermore, Patent Owner's argument is internally inconsistent and, therefore, unconvincing, by referring to Kalmanek's gate controller as both the "intended recipient" and the "originator" of the setup message. Moreover, Patent Owner's characterization is in direct contradiction to Kalmanek's express disclosure, which explains that setup messages are sent from a calling party to a called party through a gate controller: "Signaling messages are exchanged for a call *between a calling party to a called party*. A setup message for the call is exchanged *through* at least one gate controller." (Ex. 1004, 2:3–5 (emphases added)); "At step **220**, a gate for the call is established at the terminating network edge device **121** *upon receiving the setup message* from terminating gate controller **111**." (*id.* at 9:51–53 (emphasis added)); "A setup message having a destination address is forwarded *from the calling party to the called party*." (*id.* at 12:64–65 (emphasis added));

> At step **330**, the originating TIU **170** sends a setup message to the originating gate controller [**110**]. . . . [T]he setup message can be, for example, in the form of the SETUP message described below in Section **7** entitled "Protocol Description".

> At step **340**, the setup message is *forwarded* from the originating gate controller **110** to the terminating gate controller **111**.

(*id.* at 13:18–34 (emphasis added)); the "DEST" field of the SETUP message "specifies the destination *of this call*" (*id.* at 21:30 (emphasis added)); "the SETUP message is received by the Terminating BTI" (*id.* at 55:3). Indeed, the SETUP message contains information specifically intended for the terminating TIU/BTI. For example, the SIGADDR field of the SETUP message "is the IP system name and port number that the *called endpoint* should use as a destination for all BTI-BTI messages." *Id.* at 22:6–8 (emphasis added). Thus, Kalmanek explicitly discloses that the called party's device, *not* the gate controller, is the intended end recipient of the setup message. Patent Owner's arguments to the contrary are unpersuasive.

We additionally note that the '552 patent operates in the same manner. For example, the '552 patent explains that the policy enforcement point receives the setup (SIP INVITE) message, filters the message based on whether the called party is authorized for caller ID services, and then *forwards* the filtered setup message to the intended end recipient. Ex. 1001, 17:33–44.

Nor are we persuaded by Patent Owner's citation to Kalmanek Figure 3 as supporting its contention that Kalmanek's gate controllers are the intended recipients of the setup messages. PO Resp. 8–9. Figure 3 "illustrates a flow chart for performing two-phase signaling in call connection, according to an embodiment of the present invention." Ex. 1004, 2:17–19. Thus, Figure 3 illustrates how Kalmanek's setup messages are passed through, or intercepted by, the gate controllers. At step 350, the setup message is received by the terminating telephone interface

unit. *Id.* at Fig. 3, 13:27–29. Thus, Figure 3 supports Petitioner's interpretation that "the 'intended recipient device' of a call setup signaling message is the device associated with the callee." Pet. 24.

Patent Owner also faults our reference in the Institution Decision to the H.323 architecture, arguing that "there is no evidence or support in the Institution Decision that the system described in the 'background' section is the system of *Kalmanek*" and "*Kalmanek* itself disparages and details the shortcomings of the H.323 gatekeeper implementation." PO Resp. 10–11 (citing Ex. 1004, 1:55–67).

We agree that Kalmanek identifies problems with the H.323 architecture—it is precisely these identified "shortcomings" upon which Kalmanek purports to improve. Thus, instead of requiring that "all call signaling must pass through the gatekeepers," which requires "the equipment associated with gatekeepers . . . to be extremely reliable" (Ex. 1004, 1:55–59), Kalmanek uses a two-phase signal process in which messages for setting up the call are exchanged in one phase and messages for connecting the call are exchanged in a separate and distinct second phase. *Id.* at 12:39–45. "By separating the messages for setting up the call from the messages for connecting the call, the [latter] messages can be exchanged end to end without being routed through the gate controllers that set up the call." *Id.* at 12:45–48. Because "the gate controllers are involved only during the initial start of the call but not during the call duration," the message load is reduced such that "the amount of memory need[ed] in the gate controllers is greatly reduced" and "the gate controllers can be constructed without the typically stringent requirements for reliability." *Id.*

at 14:39–46. Thus, a fair reading of Kalmanek reveals that it improves upon and uses the H.323 architecture.

Accordingly, for the foregoing reasons, we are persuaded by Petitioner's showing, and find that Kalmanek describes this limitation.

c. Limitations 1B and 1D

Regarding limitations 1B and 1D, Petitioner argues that Kalmanek discloses that its signaling message includes an indication of codec specification and caller ID. Pet. 26–31, 38–39.

Regarding codec specification, Petitioner notes that, as used in Kalmanek, "quality of service" is a measurement of communication service during a call and can include the bandwidth associated with the call. *Id.* at 27 (citing Ex. 1004, 1:36–39, 3:61–64). Petitioner further notes that Kalmanek's SETUP message includes a CODING parameter that, according to Petitioner, identifies the codec. *Id.* at 27–28 (citing Ex. 1004, 21:23–29, 29:18, 30:1–8). Petitioner argues that "the chosen codec also dictates the bandwidth required for the call" because "each standardized codec utilizes a different amount of data to encode a given amount of voice data." *Id.* at 28 (citing Ex. 1003 ¶ 27).

Petitioner further notes that Kalmanek discloses a GATESETUP message that is sent from the gate controllers to the edge routers and includes an indication of the bandwidth to be implemented by the edge routers. *Id.* at 28–29 (citing Ex. 1004, 34:46–35:22). Petitioner argues that the bandwidth specified in the GATESETUP message is "the same bandwidth dictated by the coding algorithm identified in the SETUP message sent from the BTI to the gate controller." *Id.* at 29 (citing Ex. 1003 ¶¶ 27, 53). Thus, Petitioner argues, "*Kalmanek* teaches that the SETUP

message sent from the TIU/BTI to the corresponding [gate controller] includes an indication of a service, such as a codec . . ., the SETUP message is intended to invoke." *Id.* at 31.

Regarding caller ID, Petitioner notes that Kalmanek discloses that, upon receiving the SETUP message from the terminating gate controller, the terminating broadband telephony interface ("BTI") can request caller ID information by including a caller ID flag in its SETUPACK message that confirms receipt of the SETUP message. *Id.* at 30 (citing Ex. 1004, 56:18–24, Fig. 23). Petitioner notes that Kalmanek discloses that the terminating gate controller will then verify that the customer is subscribed to the caller ID service, and, if the customer is verified, return the caller ID to the customer. *Id.* at 30–31 (citing Ex. 1004, 56:22–24; Ex. 1003 ¶ 56). Petitioner further notes that Kalmanek discloses an alternative implementation whereby the terminating gate controller checks whether the terminating BTI subscribes to caller ID service on receipt of every call rather than waiting for the terminating BTI to request caller ID information. *Id.* at 31 (citing Ex. 1004, 56:36–44). Thus, Petitioner argues, "*Kalmanek* teaches that the SETUP message sent from the TIU/BTI to the corresponding [gate controller] includes an indication of a service, such as . . . caller ID, the SETUP message is intended to invoke." *Id.* at 31.

Patent Owner does not specifically challenge these aspects of the Petition. We are persuaded by Petitioner's showing, and find that the cited portions of Kalmanek support Petitioner's contentions.

d. Limitation 1C

Regarding limitation 1C, Petitioner argues that "*Kalmanek* teaches that the network entity, namely the gate controller, determines whether the

user of a sender device and the user of an intended recipient device are authorized to invoke a service indicated in the signaling message based on the users' respective profiles." *Id.* at 32. According to Petitioner, "*Kalmanek* teaches that the gate controllers have access to authentication databases with customer profile information," and "'[t]he gate controllers can authenticate signaling messages and authorize requests for service so that communication services and certain service features are only provided to authorized subscribers.'" *Id.* at 32–33 (quoting Ex. 1004, 6:49–52, citing Ex. 1004, 10:13–19). Petitioner argues that Kalmanek's SETUP message includes a CALLER field, which provides called ID information, and that Kalmanek's terminating gate controller determines whether the intended recipient line is authorized to receive caller ID information. *Id.* at 34–36 (citing Ex. 1004, 7:19–21, 21:53–61, 25:25–29, 25:37–43, 56:22–24; Ex. 1003 ¶ 59). Petitioner argues that Kalmanek's SETUP message also includes a CODING field identifying one or more coding algorithms, which correspond to a desired quality of service/bandwidth to be implemented, and that the gate controllers determine if both the sender and recipient devices are authorized to invoke the codec specification. *Id.* at 36–38 (citing Ex. 1004, 7:29–34, 9:6–21, 10:13–19, 13:55–63, 21:22–29, 22:32–53, 35:6–12; Ex. 1003 ¶ 62). Petitioner also argues that a person having ordinary skill in the art "would have understood that, to the extent not already part of the described *Kalmanek* system, both users' customer profiles could be referenced as a means of authorizing the specifically requested codec." *Id.* at 38 (citing Ex. 1003 ¶ 63).

In contesting this aspect of the Petition, Patent Owner repeats the argument that Kalmanek's gate controller initiates the SETUP message,

rather than filtering and forwarding the message initiated by the originating TIU, in asserting that the caller ID information is not present in the SETUP message sent from the originating TIU to communication network 100. PO Resp. 16–17. This argument is unpersuasive for the reasons set forth above—Kalmanek repeatedly explains that the setup messages are sent from a calling party to a called party through a gate controller. *See, e.g.*, Ex. 1004, 13:18–34, Fig. 3.

Patent Owner similarly argues that the gate controller initiates the SETUP message, and, therefore, the SETUP message is not sent by the calling device. PO Sur-Reply 10–11 (citing Ex. 1004, 25:14–17). Patent Owner takes the cited sentence out of context. As noted above, Kalmanek repeatedly explains that the setup messages are sent from a calling party to a called party through a gate controller. Read in context with the entire disclosure of Kalmanek, that the gate controller "initiates" messages to the terminating BTI refers to the SETUP message being sent from the originating TIU and forwarded through the gate controllers, during which the message is possibly filtered, to the terminating TIU. *See, e.g.*, Ex. 1004, 13:18–34, Fig. 3.

Regarding caller ID, Patent Owner argues that "Petitioner merely speculates that the SETUP message of *Kalmanek* **could** contain 'caller-id blocking', but neither Petitioner nor its expert provides any of the required evidence or explanation as to ***why*** a person of ordinary skill in the art at the time of the invention would modify *Kalmanek* as such." PO Resp. 18. Continuing, Patent Owner argues that "*Kalmanek* itself states that 'caller-id blocking' is an inherent feature of the gate controllers in the *Kalmanek*

system, and therefore 'caller-id blocking' is not part of the SETUP message of *Kalmanek*." *Id.* (citing Ex. 1004, 7:19–21).

Kalmanek discloses that the CALLER field of the SETUP message will contain an "anonymous" parameter if the originator has specified caller ID blocking. Ex. 1004, 25:25–43. Thus, Kalmanek discloses that the SETUP message includes an indication of caller ID blocking. Kalmanek, therefore, appears to contradict Patent Owner's argument. Additionally, the portion of Kalmanek cited by Patent Owner reads "[s]ervice features that depend on the privacy of the calling information, such as caller-ID blocking, *are implemented by the gate controllers*." Ex. 1004, 7:19–21 (emphasis added). This language indicates that gate controllers *implement* the caller ID blocking service, but does not support Patent Owner's contention that the SETUP message does not include caller ID blocking. Moreover, Patent Owner does not address Petitioner's discussion of caller ID—as opposed to caller ID blocking—as corresponding to a service that the signaling message is intended to invoke.

Regarding codec specification, Patent Owner argues that the codec is indicated in the SETUPACK and GATESETUP messages, not in the SETUP message. PO Resp. 19–20.

This argument ignores the discussion at pages 27–29 of the Petition, where Petitioner argues that the bandwidth specified in the GATESETUP message is the same bandwidth dictated by the SETUP message. Additionally, Kalmanek states that the CODING field of the SETUP message "specifies a list of possible encapsulations *and coding methods* that the originator will perform." Ex. 1004, 22:25–26 (emphasis added). In response to receiving these possible coding methods, the terminating BTI

sends a SETUPACK message containing a CODING field that "gives the single encapsulation and coding method, *of the choices presented in the SETUP message*, that is acceptable to the destination BTI." *Id.* at 22:50–53. Thus, Kalmanek supports Petitioner's contentions.

Accordingly, for the foregoing reasons, we are persuaded by Petitioner's showing, and find that Kalmanek describes this limitation.

e. Limitation 1E

Regarding limitation 1E, Petitioner relies on Kalmanek's discussion of caller ID and called ID blocking as corresponding to the recited filtering of the signaling message. *Id.* at 39–41. Kalmanek discloses that the SETUP message will contain a CALLER field, which "is the caller-id information," "only . . . if the customer has subscribed to some variant of caller-id service." Ex. 1004, 25:37–39; *see also* Pet. 39–40. Kalmanek further discloses that, "[i]f the originator of the call has specified caller-id blocking, the first parameter [of the CALLER field] will contain 'anonymous.'" Ex. 1004, 25:41–43. According to Petitioner, the terminating gate controller transmits the SETUP message to the terminating broadband telephony interface and filters the CALLER field of the signaling message based on whether caller ID services and caller ID blocking services have been invoked and authorized. Pet. 40–41 (citing Ex. 1003 ¶ 64).

In addition to repeating arguments discussed above, Patent Owner argues that the "the Petition relies on numerous and expressly different SETUP messages stitched together for the required 'signaling message'" and that such "SETUP messages are sent between the gate controller and the terminating telephone." PO Resp. 22–23.

This argument is unpersuasive for the reasons set forth above—Kalmanek's gate controllers receive, filter, and forward the SETUP message created by the originating TIU device. Patent Owner, again, fails to set forth any meaningful difference between a signaling message "passing through" a network entity versus a network entity "receiving and forwarding" the signaling message.

f. Conclusion

For the foregoing reasons, we are persuaded by Petitioner's showing, which we adopt, that claim 1 would have been obvious in view of Kalmanek.

g. Dependent Claims 2–4

We have reviewed the Petition, Patent Owner Response, Petitioner Reply, Patent Owner Sur-Reply, and evidence of record and determine that Petitioner has shown, by a preponderance of the evidence, that dependent claims 2–4 would have been obvious in view of Kalmanek. Patent Owner does not make any arguments with respect to these claims apart from arguments directed to independent claim 1 from which they depend, and which we have addressed above. *See* PO Resp. 25.

Claim 2 depends from claim 1 and further recites "wherein filtering the signaling message comprises altering the signaling message based on the authorized services of the sender device or the intended recipient device." Ex. 1001, 20:16–19. Petitioner relies on Kalmanek's discussion of caller ID and caller ID blocking in the same manner as discussed in section II.E.1.e above. Pet. 41 (citing Ex. 1004, 25:25–43). For the same reasons as set

forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 2 would have been obvious in view of Kalmanek.

Claim 3 depends from claim 2 and further recites "wherein altering the signaling message comprises modifying the signaling message so that the indication of the type of service is within authorized limits." Ex. 1001, 20:20–23. Petitioner relies on its showing regarding claim 2, arguing that Kalmanek's "GC_O modifies the setup message to block a caller ID or to provide a caller name in addition to a caller number." Pet. 41. For the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 3 would have been obvious in view of Kalmanek.

Claim 4 depends from claim 1 and further recites "wherein filtering the signaling message comprises discarding the signaling message having an indication of services which the sender device or the intended recipient devices is unauthorized to use." Ex. 1001, 20:24–27. Petitioner relies on Kalmanek's discussion of caller ID in which the terminating broadband telephony interface requests caller ID information upon receipt of the SETUP message, and argues that "a POSITA would understand the gate controllers in Kalmanek would discard the responsive SETUP message in the event that the terminating customer is not authorized to receive Caller ID services." Pet. 42 (citing Ex. 1003 ¶ 65). Petitioner also argues that, "to the extent it is found that Kalmanek does not teach such discarding, it would be obvious to modify Kalmanek to discard a setup message if the customer is not authorized, as Kalmanek already teaches only enabling authorized services." *Id.* (citing Ex. 1003 ¶ 65). As discussed above, Kalmanek discloses that the SETUP message contains a CALLER field containing the caller ID information. Ex. 1004, 25:37–39. Kalmanek discloses that, in a

first embodiment, the CALLER field is not included in—that is, it is removed from—the SETUP message prior to it being forwarded to the terminating BTI, and is only forwarded to the terminating BTI if the gate controller determines that the caller ID service is authorized. *Id.* at 56:20–25. Accordingly, we are persuaded by Petitioner's showing, which we adopt, that claim 4 would have been obvious in view of Kalmanek.

2. Independent Claim 6

Independent claim 6 recites a method for controlling a plurality of services in packet-based networks that is substantially similar to claim 1 (*see* Ex. 1001, 20:34–53), and Petitioner relies on Kalmanek in arguing the unpatentability of claim 6 in substantially the same manner as with claim 1 (*see* Pet. 43–46). Patent Owner presents the same arguments for claim 6 as with claim 1. *See* PO Resp. 12–13, 15, 21, 24–25.

For the reasons set forth in section II.E.1 above, we are persuaded by Petitioner's showing, which we adopt, that claim 6 would have been obvious in view of Kalmanek.

a. Dependent Claims 7–10 and 12–17

We have reviewed the Petition, Patent Owner Response, Petitioner Reply, Patent Owner Sur-Reply, and evidence of record and determine that Petitioner has shown, by a preponderance of the evidence, that dependent claims 7–10 and 12–17 would have been obvious in view of Kalmanek. Patent Owner does not make any arguments with respect to these claims apart from arguments directed to independent claim 6 from which they depend, and which we have addressed above. *See* PO Resp. 25.

Claim 7 depends from claim 6 and further recites

> wherein recognizing that the message includes at least part of the indication of the at least one of the plurality of services comprises: accessing a database including information indicating implementations of services; and
>
> comparing the indication of the at least one of the plurality of services to the information in the database.

Ex. 1001, 20:54–60. Petitioner notes that Kalmanek's SETUP message contains indications of caller ID and codec services, and argues that "*Kalmanek* teaches that a database maintains information indicating the available services." Pet. 46–47 (citing Ex. 1004, 6:41–55). Petitioner argues as follows:

> To the extent not an express teaching in *Kalmanek*, a POSITA would recognize that utilizing the database storage 140 and 141 to authenticate requested services would necessarily include comparing the service indication in the received signaling message to the service information stored in the database as a means of identifying which service was requested.

Id. at 47 (citing Ex. 1003 ¶ 66). As noted by Petitioner, Kalmanek discloses that "[g]ate controllers **110** and **111** are adjunct platforms that have access to authentication databases and customer profile information on database storage **140** and **141**, respectively." Ex. 1004, 6:41–43. Kalmanek further discloses that "the gate controller authorizes a quality of service for a call using the authentication databases and customer profile information on the associated database storage (e.g., database storage **140** and **141**)." *Id.* at 10:16–19. Accordingly, we are persuaded by Petitioner's showing, which we adopt, that claim 7 would have been obvious in view of Kalmanek.

Claim 8 depends from claim 6 and further recites "wherein the beneficiary is the sender of the message." Ex. 1001, 20:61–62. Petitioner relies on Kalmanek's discussion of the CODING field of its SETUP

message in the same manner as discussed in section II.E.1.d above. Pet. 48 (citing Ex. 1004, 7:29–34, 10:13–19, 13:55–63, 21:22–29). For the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 8 would have been obvious in view of Kalmanek.

Claim 9 depends from claim 6 and further recites "wherein the beneficiary is the intended recipient of the message." Ex. 1001, 20:63–64. Petitioner relies on Kalmanek's discussion of caller ID in the same manner as discussed in section II.E.1.d above. Pet. 48 (citing Ex. 1003 ¶ 67; Ex. 1004, 56:22–26). For the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 9 would have been obvious in view of Kalmanek.

Claim 10 depends from claim 6 and further recites

> wherein determining whether the beneficiary of the service is authorized to invoke or receive the at least one of the plurality of services comprises:
>
> receiving from an authentication server a user profile of the beneficiary that specifies which of the plurality of services the beneficiary is authorized to invoke or receive; and
>
> comparing the authorized services for the beneficiary to the at least one of the plurality of services indicated in the message.

Ex. 1001, 20:65–21:7. Petitioner relies on Kalmanek's discussion of databases 140, 141 in the same manner as discussed with respect to claim 7 above. Pet. 48–49 (citing Ex. 1003 ¶ 66; Ex. 1004, 6:41–43, 10:16–19). For the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 10 would have been obvious in view of Kalmanek.

Claim 12 depends from claim 6 and further recites "wherein processing the message comprises forwarding the message to the beneficiary

if the beneficiary is authorized to invoke or receive the at least one of the plurality of services." Ex. 1001, 21:12–15. Petitioner relies on Kalmanek's discussion of caller ID in the same manner as discussed in section II.E.1.e above. Pet. 49 (citing Ex. 1004, 25:37–43, 56:17–44). For the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 12 would have been obvious in view of Kalmanek.

Claim 13 depends from claim 6 and further recites "wherein processing the message comprises altering the message and then forwarding the message to the intended recipient." Ex. 1001, 21:16–18. Petitioner relies on Kalmanek's discussion of caller ID, arguing that "*Kalmanek* teaches that the setup message is altered to include the calling name, and this is the message sent from the gate controller to the terminating BTI, i.e., the BTI of the intended recipient." Pet. 49–50 (citing Ex. 1004, 25:14–16, 25:25–27, 25:39–41). Kalmanek discloses that "[i]f the customer has subscribed to calling name service . . ., the second parameter [of the SETUP message CALLER field] will contain the name of the caller." Ex. 1004, 25:39–41. Regarding the requirement for altering the recited message, Petitioner relies on Kalmanek's discussion of caller ID and caller ID blocking in the same manner as discussed in section II.E.1.e above. Pet. 49. Accordingly, we are persuaded by Petitioner's showing, which we adopt, that claim 13 would have been obvious in view of Kalmanek.

Claim 14 depends from claim 13 and further recites "wherein altering the message comprises altering the message so as to disable the at least one of the plurality of services." Ex. 1001, 21:19–21. Petitioner relies on Kalmanek's discussion of caller ID blocking in the same manner as discussed in section II.E.1.e above. Pet. 50 (citing Ex. 1004, 25:41–43). For

the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 14 would have been obvious in view of Kalmanek.

Claim 15 depends from claim 6 and further recites "wherein processing the message comprises discarding the message if the beneficiary is not authorized to invoke or receive the at least one of the plurality of services." Ex. 1001, 21:22–25. Petitioner relies on Kalmanek's discussion of caller ID in the same manner as discussed in section II.E.1.g above regarding claim 4. Pet. 50. For the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 15 would have been obvious in view of Kalmanek.

Claim 16 depends from claim 15 and further recites "the network entity returning an error indication message to the sender of the message." Ex. 1001, 21:26–28. Petitioner relies on Kalmanek's discussion of the ERROR field of the SETUPNAK message, and argues that "*Kalmanek* teaches that the gate controller can return an ERROR message to the originating BTI, i.e., the sender." Pet. 50 (citing Ex. 1004, 26:32–35). Kalmanek discloses that "[i]f the [terminating] BTI is not willing to accept [an] incoming call, it responds with [a] SETUPNAK" message. Ex. 1004, 26:27–28. The SETUPNAK message includes an ERROR field, which "gives an error message string, . . . and can be passed back to the originating BTI." *Id*. at 26:32–34. Accordingly, we are persuaded by Petitioner's showing, which we adopt, that claim 16 would have been obvious in view of Kalmanek.

Claim 17 depends from claim 6 and further recites

> wherein if the beneficiary is not authorized to invoke or receive the at least one of the plurality of services, processing the message comprises:
>
> returning an option message to the sender asking the sender if the sender wants to invoke or receive the at least one of the plurality of services.

Ex. 1001, 21:29–34. Petitioner argues that "it would have been obvious for the system of Kalmanek to be modified such that it would present an offer to invoke unauthorized services to a requesting user." Pet. 51 (citing Ex. 1003 ¶ 68). According to Petitioner, such authorization could be implemented with either the codec or caller ID services. *Id.* (citing Ex. 1003 ¶ 68). Petitioner's declarant testifies as follows:

> It was commonly known at the time of the '552 Patent and across an array of industries that when a customer requests a service that has not been previously paid for (or subscribed to), it is desirable to offer the customer an opportunity to upgrade and add the requested service. . . . [I]t would have been obvious to a POSITA to modify the Kalmanek system to give the user the option to upgrade their account to invoke a service that was not previously authorized. Such a modification would be straightforward to implement and require only routine programming, and would provide the benefit of allowing customers to request and upgrade to enhanced feature sets on demand.

Ex. 1003 ¶ 68. Petitioner's declarant further notes that "Gleichauf . . . describes a method of adding previously unsubscribed services to a call in real time." *Id.* (citing Ex. 1007, 1:55–56, 4:54–60). "Such a modification to Kalmanek would be a straightforward application of basic computer programming and would not require undue experimentation." *Id.* We are persuaded by Petitioner's showing and the uncontested declaration testimony evidence of record, and determine that Petitioner sets forth

reasoning with a rational underpinning as to why a person having ordinary skill in the art would have modified Kalmanek's system as set forth by Petitioner. Accordingly, we adopt Petitioner's showing that claim 17 would have been obvious in view of Kalmanek.

3. Claims 18–20 and 22

Independent claim 18 recites a method for controlling a plurality of services in packet-based networks that is substantially similar to claim 1, but requires "the IP telephone services comprise at least *two* of caller-ID, call waiting, multi-way calling, multi-line service, and codec specification," and "the network entity filtering the message based on whether the user is authorized to invoke or receive *the IP telephone services*." Ex. 1001, 21:35–54 (emphases added). Thus, claim 18 requires filtering the message based on whether the user is authorized to invoke or receive *two* IP telephone services.

Petitioner relies on Kalmanek in arguing the unpatentability of claim 18 in substantially the same manner as with claim 1. *See* Pet. 51–53. Regarding the filtering step, Petitioner states "*[s]ee* mapping for claim 1[E]." *Id.* at 53. The cited mapping, however, only discusses filtering of "unauthorized caller ID information," and does not discuss the filtering of codec specification services or another IP telephone service. *See id.* at 39–41; *see also id.* at 38–39 (identifying "codec specification and caller ID" as two types of services).

In the Institution Decision, we determined that Petitioner failed to demonstrate a reasonable likelihood of prevailing in establishing the unpatentability of claim 18 because the Petition failed to "discuss the

filtering of codec specification services or another IP telephone service" in addition to caller ID. Inst. Dec. 21 (citing Pet. 51–53).

In its Reply, Petitioner notes that, as used in the '552 patent, filtering includes passing the setup message through unaltered, and argues, therefore, that the Petition satisfies its requirement to show how the network entity filters the SETUP message based on codec because "modifying a message is not required to satisfy the Challenged Claims." Pet. Reply 15–18. According to Petitioner, "[b]ecause both Caller ID and Codec Specification are indicated in Kalmanek's SETUP message, both services are authorized, and the SETUP message is forwarded on to the callee when authorization is successful, Petitioner has carried its burden in demonstrating that the 'filtering' limitation is satisfied for both services." *Id.* at 15 (citing Pet. 39).

We are not persuaded by Petitioner's arguments. The Petition addresses caller ID, but does not mention codec when asserting how Kalmanek discloses the filtering step. *See* Pet. 39–41. Although the Petition notes that "[t]he '552 Patent describes several different filtering actions that may be performed, including forwarding the message on unaltered (e.g., for authorized services)" (*id.* at 39), the Petition does not address codec with respect to this (or any other) filtering. The Petition, therefore, fails to explain how filtering is based on any determination regarding codec, even if that determination is that the terminating TIU is authorized to invoke one of the specified codec options within the SETUP message. Petitioner's suggestion that a codec has been authorized simply because codec is indicated in the SETUP message ignores the requirement that the indicated services must be determined to, in fact, be authorized.

Nor do we agree with Petitioner's assertion that the filtering step is satisfied merely by forwarding the SETUP message without modification. Pet. Reply 15–16. Rather, the filtering must be "based on whether the user is authorized to invoke or receive the IP telephone service." Ex. 1001, 21:52–54. As noted above, the Petition does not address codec with respect to filtering based on any determination.

Petitioner's attempt in its Reply to re-characterize the Petition is unpersuasive and an improper attempt to make out a prima facie case for unpatentability. *See* Trial Practice Guide, 77 FR at 48,767; *see also* Trial Practice Guide 2018 Update, pages 14–15, Office Patent Trial Practice Guide, August 2018 Update, 83 Fed. Reg. 39989 (Aug. 13, 2018).

Moreover, even if we were to agree Petitioner raised the issue in the Petition, Kalmanek explains that the CODING field of the SETUP message "specifies a list of possible encapsulations and coding methods that the originator will perform." Ex. 1004, 22:25–26. In response to receiving these possible coding methods, the terminating BTI sends a SETUPACK message containing a CODING field that "gives the single encapsulation and coding method, of the choices presented in the SETUP message, that is acceptable to the destination BTI." *Id.* at 22:50–53. Thus, the determination of what codec is authorized is made by the terminating BTI rather than the Petitioner-defined network entity (gate controllers in conjunction with NEDs), and the determination is made *after* the SETUP message has already been forwarded to the terminating BTI. We note that the Petition relies on the SETUPACK message in mapping the determining step to the indicated

codec being authorized for the sender device.[10] Pet. 36–37. Claim 18, however, requires that the network entity *intercepts* the message, which, as explained above, occurs prior to the message being forwarded to the end recipient device. The Petition, therefore, fails to explain how the network entity determines whether the user is authorized to invoke or receive the indicated codec service as required by claim 18.

Petitioner argues that, upon receiving the SETUPACK message, the gate controllers authorize the codec specified in the SETUPACK message utilizing customer profile information. Pet. 37. This also does not satisfy the requirements of claim 18, however, because the claim requires that "the network entity filtering *the message*" (Ex. 1001, 21:52 (emphasis added)), and, thus, requires that the initial SETUP message (identified by Petitioner as corresponding to the recited "message") be subject to the filtering step.

Therefore, Petitioner has not made a persuasive showing of how Kalmanek teaches or suggests all of the limitations of claim 18 or its dependent claims 19, 20, and 22. On this record, therefore, Petitioner has not shown, by a preponderance of the evidence, that claim 18 or its dependent claims 19, 20, and 22 would have been obvious in view of Kalmanek.

4. Independent Claim 23

Independent claim 23 recites

> A system for controlling a plurality of services in packet-based networks comprising:

[10] Although the Petition purports to explain how the indicated codec is authorized for "both the sender and recipient devices" (Pet. 36), we see no discussion of codec authorization for the sender device in the Petition. *See* Pet. 36–38.

> an interface that is in a communications path of signaling messages between a first end device and a second end device, wherein the interface receives messages according to a protocol;
>
> a processor;
>
> data storage; and
>
> program logic stored in the data storage

in which the program logic is executable by the processor to perform steps similar to those recited in claim 1. Ex. 1001, 22:7–32.

Petitioner argues that "*Kalmanek* teaches several different devices that are in the communications path of signaling messages between first and second end devices," and argues that network interface units 160, 161 and gate controllers 110, 111 are examples of such devices. Pet. 54 (citing Ex. 1004, 4:57–65, 5:29–44, 21:1–29). Petitioner argues that Kalmanek's gate controllers "implement a set of service-specific control functions to support communication services," and argues that "a POSITA would readily understand the gate controllers to include processors." *Id.* at 55 (citing Ex. 1003 ¶ 69; Ex. 1004, 6:44–46). Petitioner argues that "a POSITA would also readily understand the *Kalmanek* gate controller to include data storage, i.e., memory." *Id.* (citing Ex. 1003 ¶ 69). Petitioner argues that "*Kalmanek* discloses that the gate controller performs a series of steps implemented in program logic." *Id.* at 56 (citing Ex. 1003 ¶ 69). Petitioner relies on Kalmanek to disclose or teach the steps recited in claim 23 in the same manner as set forth in section II.E.1 above regarding claim 1. *Id.*

As noted by Petitioner's declarant, Kalmanek discloses that its "TIUs contain sufficient processing and memory to perform signaling and call control functions." Ex. 1004, 5:45–46; *see also* Ex. 1003 ¶ 69 (citing same). Petitioner's declarant opines that because Kalmanek's gate controllers also

"undertake complex processing operations, . . . a POSITA would understand that these complex operations in the gate controllers could only be accomplished by way of [a] processor, in the same way Kalmanek expressly teaches the TIUs contain a processor to perform signal processing." Ex. 1003 ¶ 69. We note that Kalmanek discloses that its two-phase signal process only requires the gate controllers to be involved during the initial start of the call, which allows "the amount of *memory* need[ed] in the gate controllers [to be] greatly reduced." Ex. 1004, 14:39–46 (emphasis added). Thus, we find that the cited portions of Kalmanek support Petitioner's contentions.

Patent Owner presents the same arguments for claim 23 as with claim 1. *See* PO Resp. 13, 15, 21, 25.

For the reasons set forth in section II.E.1 above, we are persuaded by Petitioner's showing and the uncontested declaration testimony evidence of record. Accordingly, we adopt Petitioner's showing that claim 23 would have been obvious in view of Kalmanek.

F. Challenge 2 – Kalmanek and Shaffer

Petitioner asserts that Kalmanek and Shaffer describe all elements of claims 5 and 11, and that it would have been obvious to a person having ordinary skill in the art to combine the teachings of Kalmanek and Shaffer. Pet. 57–59. In support of its showing, Petitioner relies upon the Rubin Declaration. *Id.* (citing Ex. 1003). We have reviewed the Petition, Patent Owner Response, Petitioner Reply, Patent Owner Sur-Reply, and evidence of record and determine that Petitioner has shown, by a preponderance of the evidence, that dependent claims 5 and 11 would have been obvious in view

of Kalmanek and Shaffer and that Petitioner has set forth reasoning with rational underpinnings why it would have been obvious to combine the teachings of Kalmanek and Shaffer. Patent Owner does not make any arguments with respect to these claims apart from arguments directed to the independent claims from which they depend, and which we have addressed above. *See* PO Resp. 25.

1. Dependent Claim 5

Claim 5 depends from claim 1 and further recites "the network entity communicating with one or more other network entities responsible for monitoring media data flow associated with the call between the sender device and the intended recipient device to ensure compliance with the authorized services and an authorized amount of bandwidth." Ex. 1001, 20:28–33. Petitioner notes that Kalmanek's NEDs will temporarily stop monitoring call data when instructed by the gate controller to implement a HOLD command, and argues that "a POSITA would understand *Kalmanek* to teach that the originating and terminating [NEDs] are continuously monitoring the data stream during the call, but that such monitoring may be temporarily on HOLD if there is no need to monitor because the voice data stream temporarily stops." Pet. 57 (citing Ex. 1003 ¶ 70; Ex. 1004, 27:61–64). We find that the cited portions of Kalmanek support Petitioner's contentions.

Petitioner argues that Shaffer teaches that its "BWAS can monitor bandwidth usage and quality of service requirements and adjust accordingly" and that "the BWAS continuously monitors local traffic and can communicate with other monitoring agents located on other segments to determine their bandwidth usage." Pet. 58 (citing Ex. 1005, 1:64–2:8, 5:18–

33). As noted in section II.D.2 above, Shaffer's BWAS compares the usage to a predetermined threshold value, and, if bandwidth usage exceeds the threshold, sends a command ordering the terminals connected to the system to adjust their coding hierarchies so that a lower speed codec is employed. Ex. 1005, 5:59–6:15. Thus, we find that Shaffer supports Petitioner's contentions.

Petitioner argues that "[i]t would have been obvious to a POSITA to modify [Kalmanek's NEDs] to include the bandwidth-monitoring functionality performed by the BWAS described in *Shaffer*" because Kalmanek's "NEDs already track resource usage and therefore, monitoring data flow and communicating with other NEDs would have been obvious." *Id.* at 58 (citing Ex. 1003 ¶ 71). Petitioner argues that "[s]uch a modification would require routine computer programming of the [NEDs] that would be well-known to and within the capabilities of a POSITA." *Id.* (citing Ex. 1003 ¶ 71). According to Petitioner, incorporating Shaffer's BWAS into Kalmanek's NEDs would facilitate Kalmanek's stated objective to "ensure that enhanced quality of service for a call of a particular party has been authorized." *Id.* at 59 (citing Ex. 1003 ¶ 71; Ex. 1004, 5:19–22). We agree with Petitioner's showing, which we adopt, that it would have been obvious to combine the teachings of Kalmanek and Shaffer.

For the foregoing reasons, we are persuaded by Petitioner's showing, which we adopt, that claim 5 would have been obvious in view of Kalmanek and Shaffer.

2. Dependent Claim 11

Claim 11 depends from claim 6 and further recites "monitoring network resource usage to ensure that the user is only utilizing services that

the user is authorized to use and is utilizing an authorized amount of bandwidth." Ex. 1001, 21:8–11. Petitioner relies on the combined teachings of Kalmanek and Shaffer as set forth above regarding claim 5. Pet. 59. For the same reasons as set forth above, we are persuaded by Petitioner's showing, which we adopt, that claim 11 would have been obvious in view of Kalmanek and Shaffer.

G. Challenge 3 – Kalmanek and Strathmeyer

Petitioner asserts that Kalmanek and Strathmeyer describe all elements of claims 21, 24, and 25, and that it would have been obvious to a person having ordinary skill in the art to combine the teachings of Kalmanek and Strathmeyer. Pet. 59–64. In support of its showing, Petitioner relies upon the Rubin Declaration. *Id.* (citing Ex. 1003). We have reviewed the Petition, Patent Owner Response, Petitioner Reply, Patent Owner Sur-Reply, and evidence of record and determine that Petitioner has shown, by a preponderance of the evidence, that dependent claims 24 and 25 would have been obvious in view of Kalmanek and Shaffer and that Petitioner has set forth reasoning with rational underpinnings why it would have been obvious to combine the teachings of Kalmanek and Strathmeyer. Petitioner, however, has failed to show, by a preponderance of the evidence, that dependent claim 21 would have been obvious. Patent Owner does not make any arguments with respect to these claims apart from arguments directed to the independent claims from which they depend, and which we have addressed above. *See* PO Resp. 25.

1. Claim 21

Claim 21 depends from claim 18. Ex. 1001, 22:1–2. Petitioner relies on Kalmanek in a similar manner as with claim 1, and relies on Strathmeyer to teach that session initiation protocol is equivalent to H.323. Pet. 59–61. As explained in section II.E.3 above, Petitioner has not made a showing of how Kalmanek teaches or suggests all of the limitations of claim 18 and, therefore, of its dependent claim 21.

2. Independent Claim 24

Independent claim 24 recites "[a] system comprising: a border element being in a communications path of session initiation protocol (SIP) signaling messages associated with a call between end devices," the SIP signaling message including a service indication and the border element filtering and authorizing the SIP signaling message similarly as in claim 1. Ex. 1001, 22:34–47. Claim 24 further requires a proxy server that provides user profile information to the border element. *Id.* at 22:48–54.

Petitioner relies on Kalmanek in a similar manner as with claim 1, arguing that Kalmanek's network edge devices 120, 121 and gate controllers 110, 111 correspond to the recited border element and proxy server, respectively. Pet. 61–63. For the reasons set forth in section II.E.1 above, we find that Kalmanek supports Petitioner's contentions.

Petitioner relies on Strathmeyer to teach the use of SIP. *Id.* at 61. As noted in section II.D.3 above, Strathmeyer describes SIP as being "functionally equivalent" to the H.323 standard. Ex. 1006 ¶ 13. Accordingly, we find that Strathmeyer supports Petitioner's contentions.

Petitioner argues that it would have been obvious to use Strathmeyer's SIP in place of Kalmanek's H.323 protocol because "both protocols are well

known for use in telephony networks" and "[i]mplementing SIP would also obtain a predictable result." Pet. 60–61; *see also KSR*, 550 U.S. at 416 ("[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result."). We agree with Petitioner's showing, which we adopt, that it would have been obvious to combine the teachings of Kalmanek and Strathmeyer.

Patent Owner presents the same arguments for claim 24 as with claim 1. *See* PO Resp. 15, 21, 25. We note, however, that claim 24 does not recite the border element "intercepting" the SIP signaling message, upon which Patent Owner's arguments focus. *See* Ex. 1001, Ex. 1001, 22:34–54.

For the foregoing reasons, we are persuaded by Petitioner's showing, which we adopt, that claim 24 would have been obvious in view of Kalmanek and Strathmeyer.

a. Dependent Claim 25

Claim 25 depends from claim 24 and further recites "wherein the border element is selected from the group consisting of a firewall, an application layer gateway (ALG), and a SIP-aware firewall." Ex. 1001, 22:55–57. Petitioner argues that "*Kalmanek* teaches that edge routers monitor calls to ensure traffic complies with authorized quality of service" and that "[a] POSITA would understand this functionality as analogous to functionality performed by firewalls and would consider the *Kalmanek* teaching on this point to be teaching a firewall as the border element." Pet. 64 (citing Ex. 1003 ¶ 74). Patent Owner does not make any arguments with respect to claim 25 apart from arguments directed to independent claim

24 from which it depends, and which we have addressed above. *See* PO Resp. 25.

Kalmanek discloses network edge devices as generic devices including routers, bridges, and other devices:

> Network edge devices (NEDs) **120** and **121** are devices located at the edge of the communication network **100** that connects the communication network **100** to the access networks **120** and **121**, respectively. The network edge devices can be, for example, routers or bridges or similar equipment that can connect communication network **100** to access networks **150** and **151**. Because NEDs **120** and **121** can be specifically implemented as, for example, routers at the network edge, these units are also referred to herein as edge routers (ERs).

Ex. 1004, 4:66–5:8. Kalmanek further discloses that "[a] 'gate' is a call-admission control mechanism that uses, for example, known packet filters at the edge routers." *Id.* at 9:53–55. Petitioner's declarant testifies that "[a] POSITA would understand that a router sitting at the edge of a network providing admission control to the network and implementing packet filters provides an equivalent functionality to that of a firewall." Ex. 1003 ¶ 74.

We are persuaded by Petitioner's showing and the uncontested declaration testimony evidence of record. Accordingly, we adopt Petitioner's showing that claim 25 would have been obvious in view of Kalmanek and Strathmeyer.

H. Challenge 4 – Kalmanek and Gleichauf

Petitioner asserts that Kalmanek and Gleichauf describe all elements of claim 17, and that it would have been obvious to a person having ordinary skill in the art to combine the teachings of Kalmanek and Gleichauf.

Pet. 64–67. In support of its showing, Petitioner relies upon the Rubin Declaration. *Id.* (citing Ex. 1003). We have reviewed the Petition, Patent Owner Response, Petitioner Reply, Patent Owner Sur-Reply, and evidence of record and determine that Petitioner has shown, by a preponderance of the evidence, that dependent claim 17 would have been obvious in view of Kalmanek and Gleichauf and that Petitioner has set forth reasoning with rational underpinnings why it would have been obvious to combine the teachings of Kalmanek and Gleichauf. Patent Owner does not make any arguments with respect to claim 17 apart from arguments directed to independent claim 6 from which it depends, and which we have addressed above. *See* PO Resp. 25.

> Claim 17 depends from claim 6 and further recites
>
> wherein if the beneficiary is not authorized to invoke or receive the at least one of the plurality of services, processing the message comprises:
>
> returning an option message to the sender asking the sender if the sender wants to invoke or receive the at least one of the plurality of services.

Ex. 1001, 21:29–34. Petitioner relies on Kalmanek in a similar manner as with claim 1, and relies on Gleichauf to teach the real time insertion of services during call setup. Pet. 64–67. As noted in section II.D.4 above, Gleichauf discloses that, in the event that a client initiating an IP telephony call has not subscribed to a requested service prior to initiating the call, a system server authenticates the client and adds the requested service to the list of services the client is authorized to use. Ex. 1007, 4:54–64, 9:1–46. One or both of the calling and called clients are then charged for use of the requested service. *Id.* at 9:47–10:2. Thus, we find that Gleichauf supports Petitioner's contentions.

Petitioner argues "it would have been obvious to a POSITA to modify the *Kalmanek* system to include the ability to prompt a user to add an otherwise unauthorized service during call setup" because the "modification would provide the benefit of permitting users to increase the feature sets when needed and would generate new revenue streams for the provider as a result of the services on demand feature." Pet. 65–66 (citing Ex. 1003 ¶ 68). "Such a modification would require routine computer programming of the edge routers and gate controller that would be well-known to and within the capabilities of a POSITA." *Id.* at 67 (citing Ex. 1003 ¶ 68). We agree with Petitioner's showing, which we adopt, that it would have been obvious to combine the teachings of Kalmanek and Gleichauf.

For the foregoing reasons, we are persuaded by Petitioner's showing, which we adopt, that claim 17 would have been obvious in view of Kalmanek and Gleichauf.

I. Patent Owner's Polaris *Argument*

Patent Owner notes that an argument made in an appeal pending at the U.S. Court of Appeals for the Federal Circuit asserts that "the Board's appointments of administrative patent judges violate the Appointments Clause of Article II" of the U.S. Constitution. PO Resp. 26. "Patent Owner . . . adopts this constitutional challenge . . . to ensure the issue is preserved pending the appeal." *Id.*

The Board has previously "declin[ed] to consider . . . constitutional challenge[s] as, generally, 'administrative agencies do not have jurisdiction to decide the constitutionality of congressional enactments.'" *Square, Inc. Unwired Planet LLC*, Case IPR2014-01165, Paper 32 at 25 (PTAB Oct. 30,

2015) (quoting *Riggin v. Office of Senate Fair Emp't Practices*, 61 F.3d 1563, 1569 (Fed. Cir. 1995)). We, likewise, decline to consider Patent Owner's constitutionality argument.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 1–17 and 23–25 of the '552 patent are unpatentable. Petitioner, however, has failed to meet its burden of proof regarding the unpatentability of claims 18–22.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1–17 and 23–25 of the '552 patent are determined to be unpatentable;

FURTHER ORDERED that Petitioner's request for cancellation of claims 18–22 is *denied*; and

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

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