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Paper 11
Entered: December 14, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETSKOPE, INC.,
Petitioner,

v.

BITGLASS, INC.,
Patent Owner.

PGR2021-00091
Patent 10,855,671 B2

Before JAMES J. MAYBERRY, KEVIN C. TROCK, and SHEILA F. McSHANE, *Administrative Patent Judges.*

MAYBERRY, *Administrative Patent Judge*.

DECISION
Granting Institution of Post-Grant Review
35 U.S.C. § 324

I. INTRODUCTION

Netskope, Inc. ("Petitioner") filed a Petition requesting a post-grant review of claims 1, 2, 4–10, and 12–16 (the "Challenged Claims") of U.S. Patent No. 10,855,671 B2 (Ex. 1001, the "'671 patent"). Paper 2, 1 ("Pet." or "Petition"). Bitglass, Inc. ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). With our prior authorization, Petitioner and Patent Owner filed statements of additional legal authority directed to parallel petitions and written description. Papers 9, 10.

We may not institute a post-grant review "unless . . . the information presented in the petition filed under section 321, if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable." 35 U.S.C. § 324(a). Upon consideration of the arguments and evidence, we determine Petitioner has demonstrated that it is more likely than not that at least one of the Challenged Claims is unpatentable. Accordingly, we institute a post-grant review of the Challenged Claims of the '671 patent.

A. Real Parties in Interest

Petitioner and Patent Owner state that they are the real parties-in-interest. Pet. 2; Paper 5, 2.

B. Related Matters

Petitioner identifies district court litigation styled, *Netskope, Inc. v. Bitglass, Inc.*, No. 3:21-cv-00916-EMC (N.D. Cal. Feb. 5, 2021), as a matter related to the '671 patent. Pet. 2. Additionally, Petitioner identifies PGR2021-00092, which also challenges claims of the '671 patent, and IPR2021-01045 and IPR2021-01046, which challenge claims of U.S. Patent No. 10,757,090 (the "'090 patent"), which is related to the '671 patent. *Id.*;

see also Ex. 1001, code (63) (indicating the relationship between the '671 patent and '090 patent); Paper 5, 2 (identifying the same related matters).

C. The '671 Patent

The '671 patent, titled "Secure Application Access System," issued December 1, 2020, from U.S. Application 16/876,163 (the "'163 application"), filed May 18, 2020. Ex. 1001, codes (54), (45), (21), (22). The face of the patent indicates that the '163 application is a continuation of U.S. Application 14/954,989 (the "'989 application"[1]), filed November 30, 2015, which itself is a continuation of U.S. Application 13/957,274 (the "'274 application"), filed August 1, 2013. *Id.* at code (63).

The '671 patent is directed "to securing data on client devices external to corporate infrastructures." Ex. 1001, 1:21–23. The '671 patent identifies one such process for securing this type of data as proxy routing. *Id.* at 5:63–7:61. We reproduce Figure 3b, below, which illustrates a proxy in a network in an embodiment. *Id*. at 2:7–8.

[1] The '989 application matured into the '090 patent. Ex. 1001, code (63).

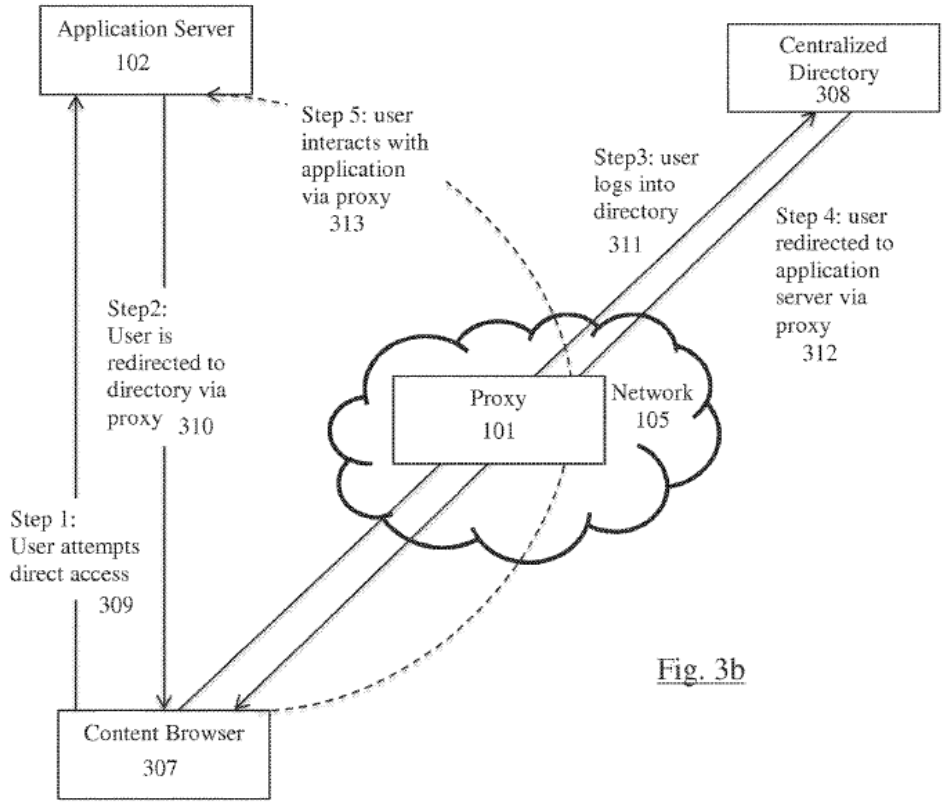

Fig. 3b

Figure 3b depicts a proxy in a network, including a content browser, application server, and centralized directory. Ex. 1001, 2:7, 6:27–39. A user using content browser 307 attempts to access (309) application server 102. *Id.* at 6:27–28. The server redirects (310) the user to central directory 308 through proxy 101. *Id.* at 6:29–30. The user then provides login credentials (311), which are authenticated by central directory 308. *Id.* at 6:30–32. Central directory 308 then redirects (312) the user to application server 102 through proxy 101. *Id.* at 6:32–33. "Such delegation to a central directory is useful in a corporation where replicating the login information for every employee at each application is difficult to manage." *Id.* at 6:10–12. This type of authentication is referred to single sign-on ("SSO"). *See* Pet. 5; Prelim. Resp. 16.

Another embodiment is shown in the '671 patent's Figure 11, which we reproduce below.

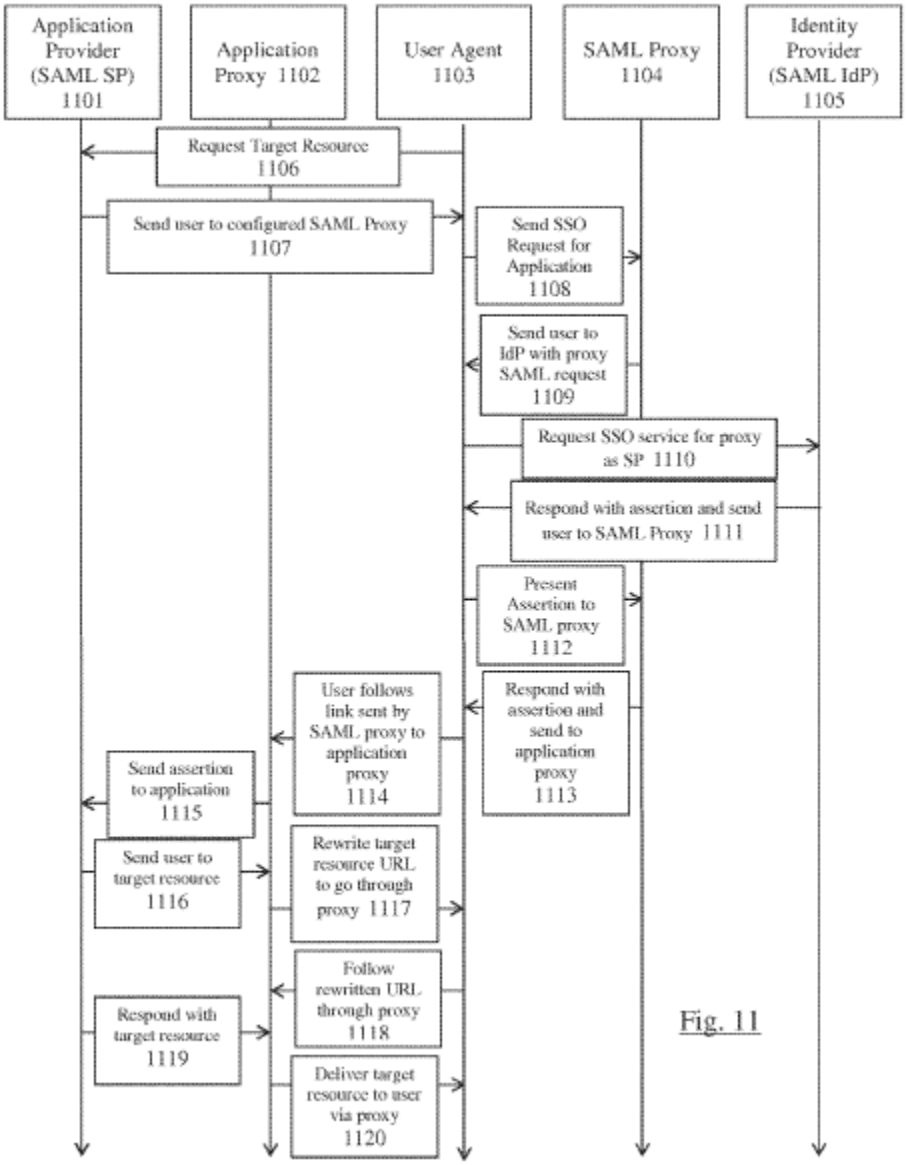

Fig. 11

Figure 11 depicts "an automatic routing and failover embodiment," and includes interactions between a user agent, application provider, application proxy, Security Assertion Markup Language (SAML) proxy, and identity provider ("IdP"). Ex. 1001, 2:26–27, 6:48–56. In this configuration, "all login attempts are redirected to the SAML proxy 1104."

Id. at 6:59–60. IdP 1105 authenticates requests from SAML proxy 1104. *Id.* at 6:62–64. The steps illustrated in Figure 11 are described as follows:

> [T]he user agent 1103 sends a request for a target resource 1106 to the application 1101. The application [service provider] 1101 directs the user agent 1107 to the SAML proxy 1104. Using the IP address received in the received direction, the user agent 1103 sends a single sign on (SSO) request for the application 1108 to the SAML proxy 1104. The SAML proxy 1104 receives the request and directs 1109 the user agent 1103 to the IdP 1105. The user agent 1103 uses the IP address of the IdP 1105 to send an SSO request 1110 to the IdP 1105. The IdP 1105 validates the SSO request and responds with an assertion of a valid SSO 1111 for the SAML proxy. The user agent 1103 sends the assertion 1112 to the SAML proxy 1104. The SAML proxy 1104 creates and assertion for the application proxy and sends the assertion and the IP address of the application proxy 1113 to the user agent 1103.
>
> The user agent 1103 passes the assertion to the application proxy 1114 using the IP address of the application proxy 1102. The application proxy 1102 forwards the assertion 1115 to the application service provider (SP) 1101. The application SP 1101 provides the target resource [Uniform Resource Locator ("URL")] to the user 1116, in this case the application proxy 1102 sits in front of the application SP 1101 and receives the target resource URL. The application proxy 1102 rewrites the target resource URL to redirect the URL to the application proxy. The application proxy 1102 sends the rewritten URL 1117 to the user agent 1103.
>
> The user agent 1103 receives the URL and accesses the application using the target resource URL 1118[,] which happens to be redirected through the application proxy 1102. The application proxy 1102 forwards any accompanying request to the application SP 1101. The application SP 1101 responds to the accompanying request 1119. The application proxy 1102 receives the response and forwards the response 1120 to the user agent 1103.

Id. at 7:8–42.

D. Challenged Claims

Petitioner challenges the patentability of claims 1, 2, 4–10, and 12–16 of the '671 patent. Pet. 1, 4. Claims 1 and 9 are independent. Ex. 1001, 13:63–16:11. Independent claim 1 is illustrative, and reproduced below.

> 1. A method for improving secure access to cloud-based application programs, comprising:
>
> [1[a][i]][2] receiving, by an identity provider, a single-sign-on request from a user device for access to a cloud-based application program, [1[a][ii]] the user device sends a request for access to the cloud-based application program to an application server and receives the cloud network location of the identity provider from the application server, [1[a][iii]] the identity provider configured to authenticate computer security validation requests for the application program;
>
> [1[b][i]] validating, by the identity provider, the single-sign-on request;
>
> [1[b][ii]] in response to validating the single-sign-on request, directing, by the identity provider, the user device to a cloud network location of an application proxy server with a valid identification assertion, [1[c][i]] the user device thereafter communicates with the application program via a URL rewritten to go through the application proxy server, the URL originally addressed to the application program, [1[c][ii]] the application proxy server not co-located with the application server.

Id. at 13:63–14:18. Independent claim 9 differs from claim 1 in that it recites "[o]ne or more non-transitory computer-readable storage media, storing one or more sequences of instructions," where the instructions correspond to the steps in the method of claim 1. *Id.* at 15:1–23.

[2] We have added Petitioner's identifies, which we use in the analysis section, below.

E. Asserted Grounds of Unpatentability

Petitioner asserts that the Challenged Claims would have been unpatentable on the following eight grounds (Pet. 4):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 4, 5, 9, 10, 12, 13	103	Sarukkai,[3] Rowley[4]
6, 14	103	Sarukkai, Rowley, Song[5]
7, 15	103	Sarukkai, Rowley, Guccione[6]
1, 2, 4, 5, 9, 10, 12, 13	102	Cronk,[7] Woelfel[8]
6, 14	103	Cronk, Woelfel, Song
7, 15	103	Cronk, Woelfel, Guccione
1, 2, 4, 5, 8, 10, 12, 13, 16	103	Kahol,[9] Parla[10]
7, 8, 15, 16	112	Written description, enablement

In addition to other evidence, Petitioner relies on declaration testimony of Dr. Michael Franz (Ex. 1002) in support of these grounds. In addition to other evidence, Patent Owner relies on declaration testimony of Dr. Seth James Nielson (Ex. 2001) to support its preliminary response.

[3] Sarukkai et al., US 9,137,131 B1, issued September 15, 2015 (Ex. 1004, "Sarukkai").
[4] Rowley, US Pub. 2008/0189778 A1, published August 7, 2008 (Ex. 1005, "Rowley").
[5] Song, WO 2005/069823 A2, published August 4, 2005 (Ex. 1011, "Song").
[6] Guccione et al., US Pub. 2015/0319156 A1, published Nov. 5, 2017 (Ex. 1010, "Guccione").
[7] Cronk et al., US Pub. 2012/0008786 A1, published January 12, 2012 (Ex. 1006, "Cronk").
[8] Woelfel et al., US Pub. 2012/0278872 A1, published November 1, 2012 (Ex. 1007, "Woelfel").
[9] Kahol et al., US Pub. 2016/0087970 A1, published March 24, 2016 (Ex. 1008, "Kahol").
[10] Parla et al., US Pub. 2015/0200924 A1, published July 16, 2015 (Ex. 1009, "Parla").

The following subsections provide a brief description of the asserted prior art references.

1. Sarukkai

Sarukkai is titled "Network Traffic Monitoring System and Method to Redirect Network Traffic through a Network Intermediary." Ex. 1004, code (54). Sarukkai discloses embodiments of a "network traffic monitoring system and method [that] implements reverse-proxying of the federated identity handshake used to authenticate user access to a cloud-based service," employing a single sign-on scheme. *Id.* at 3:8–11, 3:40–41. "When the user is authenticated, the reverse proxy rewrites the redirect web address for accessing the cloud service so that network traffic between the client device and the cloud service is redirected through a network proxy." *Id.* at 3:11–15. One such embodiment is depicted in Sarukkai's Figure 4, which we reproduce below.

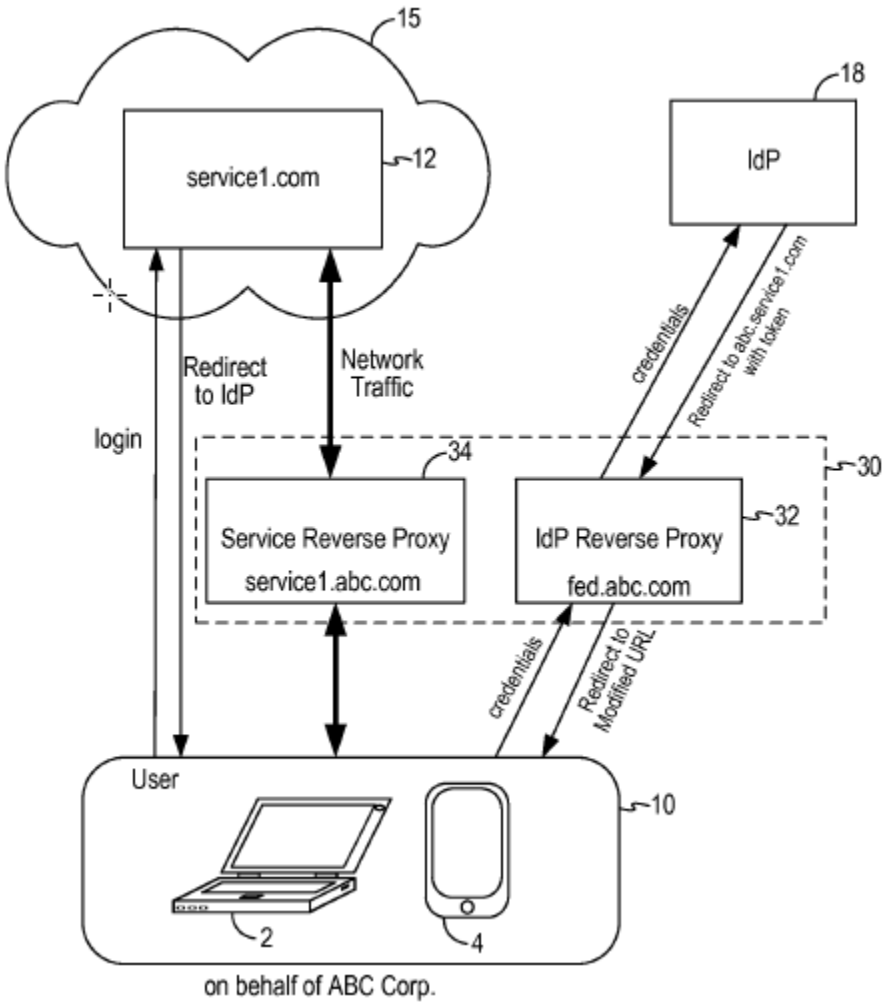

Figure 4 shows a user with client device 10 accessing cloud-based service 12. *See* Ex. 1004, 8:5–16. The user is redirected to IdP 18 through IdP Reverse Proxy 32 to authenticate log-in credentials. *Id.* at 8:16–19, 8:31–33. Upon authentication, IdP 18 redirects the user to the cloud-based service through Service Reverse Proxy 34. *Id.* at 8:38–42; *see also id.* at 8:66–9:60 (describing the steps in this process in connection with Figure 5), Fig. 5.

2. Rowley

Rowley is titled "Secure Authentication in Browser Redirection Authentication Schemes." Ex. 1005, code (54). Rowley relates "to

authenticating users of a redirected web browser." *Id.* ¶ 1. Rowley discloses that a single sign-on scheme allows "a user to authenticate once and gain access to the resources of multiple computing systems." *Id.* ¶ 3. Rowley adds that such a scheme is vulnerable to "man in the middle"[11] attacks. *Id.* We reproduce Rowley's Figure 4, as redrawn by Petitioner for clarity, below.

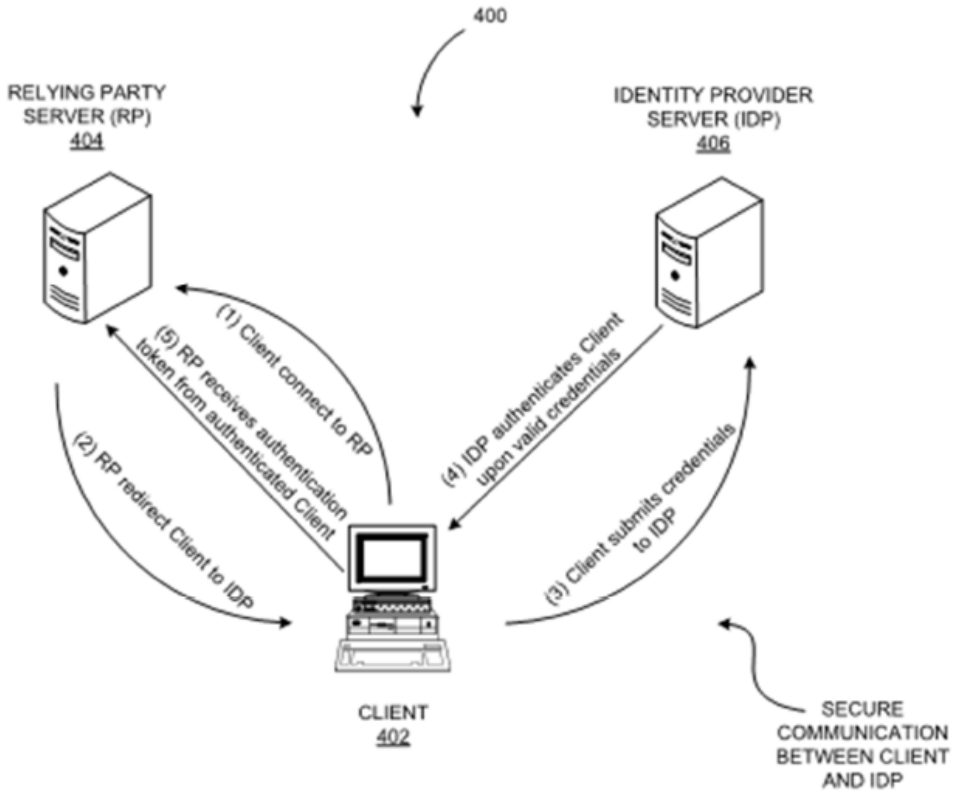

FIG. 4

Pet. 37–38. Figure 4 depicts an exemplary architecture 400 for an embodiment of Rowley's invention, including client 402, relying party ("RP") server 404, and identity provider ("IDP") server 406. Ex. 1005 ¶ 26.

[11] In a "man-in-the-middle" attack, "a malicious party intercepts a user's credentials; for example, the malicious party may occupy a proxy residing between a client and IdP and impersonate the IdP." Pet. 9.

At step 1, "client 402 connects to RP server 404 and attempts to log in using . . . single sign on." *Id.* ¶ 30. At step 2, RP server 404 redirects client 402 to IDP server 406, such as by redirecting a web browser operating on client 402 that was used to access RP server 404. *Id.* At step 3, client 402 submits its log-in credentials to IDP server 406. *Id.* At step 4, IDP server 406 authenticates the credentials and, upon a successful authentication, sends an authentication token to client 402. *Id.* ¶ 39. At step 5, client 402 forwards the authentication token to RP server 404. *Id.* ¶ 40.

3. Song

Song is titled "Centralized Transactional Security Audit for Enterprise Systems." Ex. 1011, code (54). Song discloses "a method to achieve centralized security audit for an authentication and authorization and access control system." *Id.*, code (57). Relevant to Petitioner's unpatentability contentions, Song discloses logging network requests. *Id.* ¶¶ 29, 50, 80–84, 127, 129, 135, 137, Fig. 8. For example, Song's Figure 8 depicts an authentication process within a security proxy server. *Id.* ¶ 119; Fig. 8. The process includes logging log-in parameters, such a "Userid, Domain Name, Remote IP address and Remote Hostname." *Id.* ¶ 127. Additionally, "[t]he authentication status information is . . . logged." *Id.* ¶ 129.

4. Guccione

Guccione is titled "Independent Identity Management Systems." Ex. 1010, code (54). Guccione discloses "[s]ystems, methods and apparatus embodiments . . . for authenticating a user and/or a user['s] equipment (UE)." *Id.* ¶ 4. Relevant to Petitioner's unpatentability contentions, Guccione discloses using multiple identity providers in a single sign-on scheme. *See, e.g.*, *id.* ¶ 52 (describing, in the embodiment of Figure 4, that

mobile network operator (MNO) 408 can function as a second IdP, in addition to a user IdP proxy).

5. Cronk

Cronk is titled "Apparatus and Methods for Content Delivery and Message Exchange Across Multiple Content Delivery Networks." Ex. 1006, code (54). Cronk discloses "[m]ethods and apparatus for providing protected content to subscribers of a managed . . . network." *Id.*, code (57). In certain embodiments, Cronk employs a single sign-on scheme to authenticate the subscriber. *See, e.g.*, *id*. ¶ 60 ("In another variant, the service provider and [multiple systems operator ("MSO")] accounts for a particular user may be linked or federated. In other words, a trust relationship is established between the service provider and MSO, which is used to verify subscriber information."), Figs. 3, 4. We reproduce Cronk's Figure 4, below.

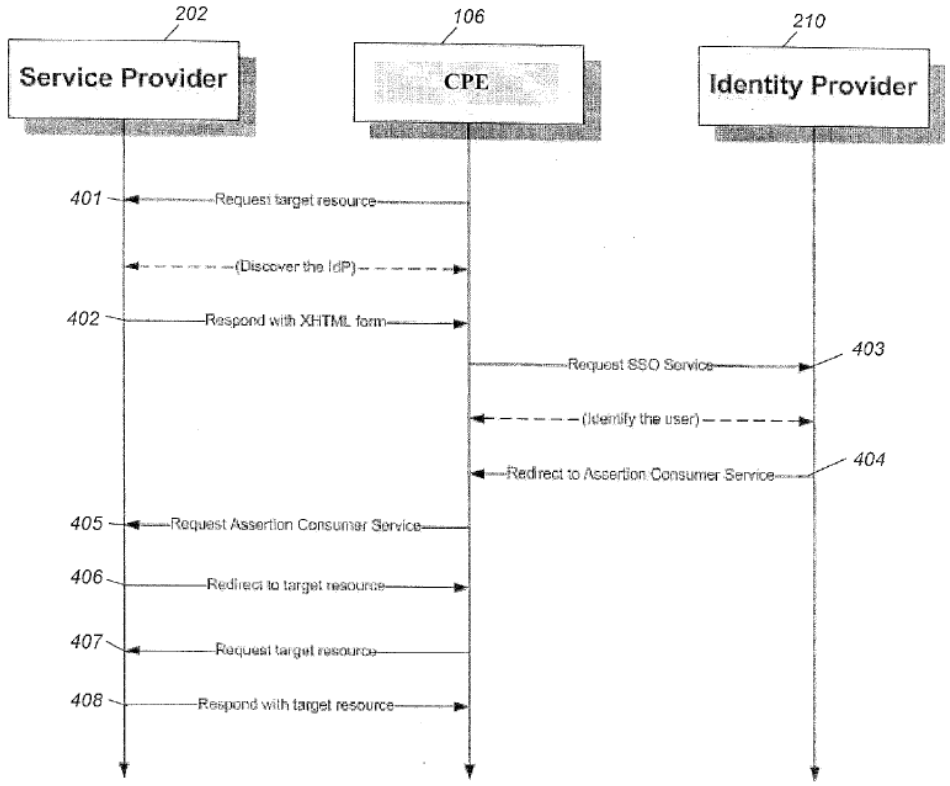

FIG. 4

Figure 4 depicts "exemplary communication flow for providing content delivery across one or more content delivery networks." Ex. 1006 ¶ 29. This exemplary process begins with a client device requesting a target resource from service provider 202 (step 401). *Id.* ¶ 133. Service provider 202 performs a security check on behalf of the target resource and, if necessary, responds to the request (step 402), such as with an XHTML form. *Id.* ¶ 135. The client device then requests to sign on to the MSO network of identity provider 210 at step 403, such as by using a single sign-on scheme, using authentication credentials. *Id.* ¶¶ 136, 137.

Identity provider 210 redirects the client device to the assertion consumer service (step 404), which validates SAML responses. Ex. 1006 ¶ 138. The client device then request assertions from service provider 202 (step 405). *Id.* The assertion consumer service processes the response,

creates a security context at service provider 202, and redirects the client device to the target resource (step 406). *Id.* ¶ 139. The client device requests the target resource at service provider 202 (step 407). *Id.* Service provider 202 returns the requested resource (step 408). *Id.* ¶ 140.

6. Woelfel

Woelfel is titled "System and Method of Federated Authentication with Reverse Proxy." Ex. 1007, code (54). Woelfel's disclosed system and method employs an enhanced reverse proxy server to intercept a SAML conversation during an authentication of a user accessing a cloud application service. *Id.*, code (57). We reproduce Woelfel's Figure 2, below.

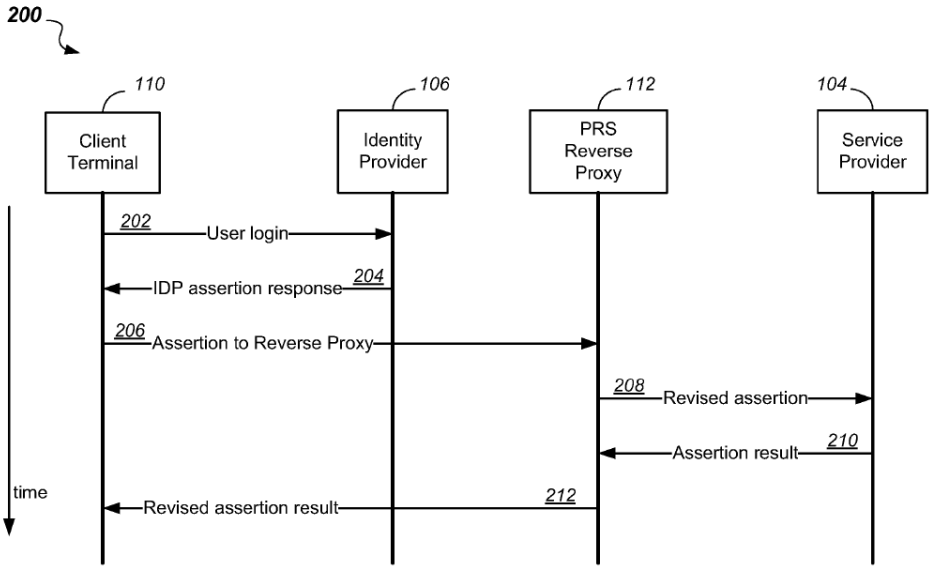

Fig. 2

Figure 2 depicts "'Identity Provider-Initiated' login as an example operation of SAML federated authentication with a Reverse Proxy." Ex. 1007 ¶ 73.

> The message sequence 202 to 212 illustrates "Identity Provider-Initiated" login in which the login of the client 110 to the SP 104 is first directed to the IDP 106[,] which provides the client 110

> with an authentication certificate with which the client 110 is then able to assert his identity with the SP 104 through the PRS-RP 112. Each of the messages 202 to 212 is shown as a single message in FIG. 2 in this high-level view.

Id. ¶ 134.

7. Kahol

Kahol is the published version of the '989 application, which is the parent application to the '163 application, which matured into the '671 patent. As Petitioner indicates, "Kahol share[s] the same detailed description and figures with the '671 patent." Pet. 96; *see also* Prelim. Resp. 73 ("Both Kahol (Ex. 1008) and the '671 patent claim priority to the same application ('274 Application)."). Petitioner contends that the Challenged Claims are not entitled to a priority date earlier than the filing date of the '163 application, making Kahol prior art to the '671 patent. Pet. 16–23. Patent Owner disputes this contention. Prelim. Resp. 21–36.[12]

8. Parla

Parla is titled "Redirect to Inspection Proxy using Single-Sign-On Bootstrapping." Ex. 1009, code (54). Parla "relates to single-sign-on techniques for service provider applications." *Id.* ¶ 1. We reproduce Parla's Figure 2, below.

[12] As will be evident from our analysis below, in Section III.E–I, we need not reach this issue in determining whether to institute trial in this proceeding.

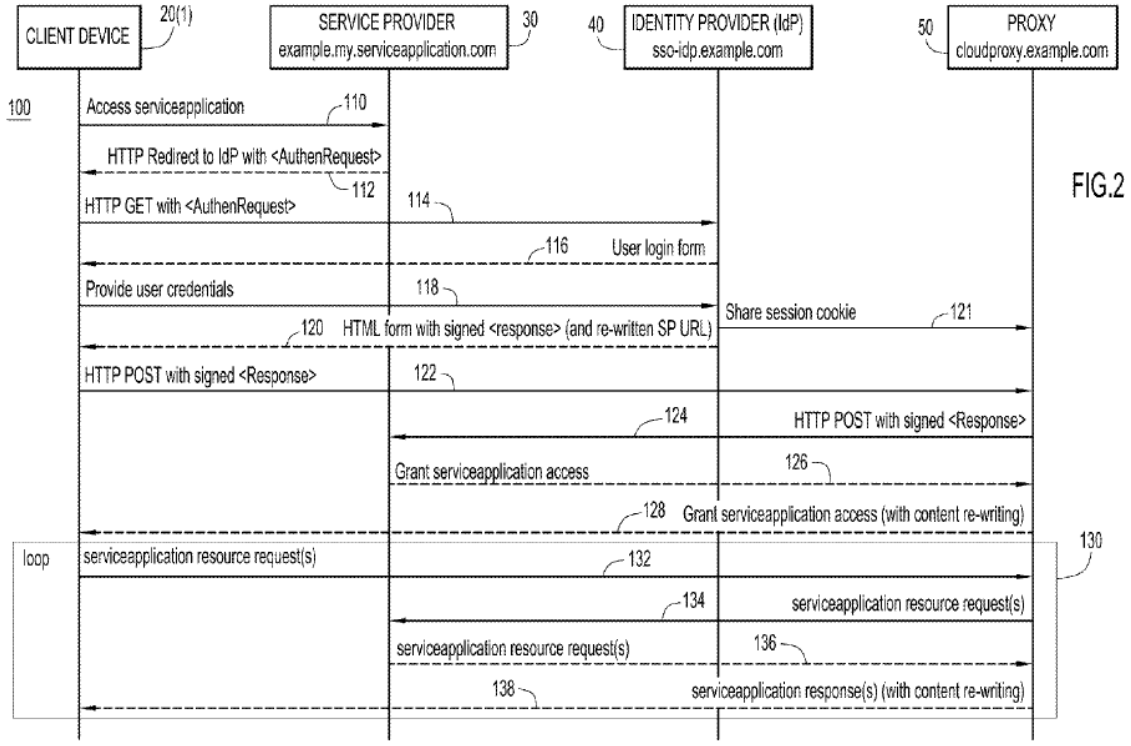

FIG.2

Figure 2 depicts "a ladder sequence diagram illustrating the operational flow according to [Parla's] techniques." Ex. 1009 ¶ 6. A user accesses a service provider using a browser (step 110), and is redirected to the identity provider (step 112) for authentication (step 114). *Id.* ¶ 18. The identity provider responds to the authentication request with a user login form (step 116). *Id.* The user provides log-in credentials into the form and sends the credentials in the browser application to the identity provider (step 118). *Id.*

Upon authentication, the identity provider responds with an assertion and rewrites a delivery resource locator for the assertion to a resource locator of a proxy (step 120). Ex. 1009 ¶ 19. The client device sends the assertion to the proxy (step 122). *Id.* ¶ 20. The proxy decodes re-written resource locator and sends the assertion to the service provider (step 124).

Id. ¶ 21. Thereafter, the proxy receives responses from the service provider (step 126). *Id.* ¶ 22.

II. DISCRETIONARY DENIAL

Patent Owner argues that we should exercise discretion to deny the Petition in this proceeding, or the petition in PGR2021-00092. Prelim. Resp. 15. Patent Owner argues that Petitioner filed two petitions challenging the same patent without justifying the need for two petitions. *Id.* at 3–15. We exercise our discretion to not institute trial in PGR2021-00092, because Petitioner did not justify two petitions challenging the '671 patent.[13] In view of the denial of institution of PGR2021-00092, we need not consider further Patent Owner's arguments on discretionary denial in this Decision.

III. ANALYSIS

A. PGR Eligibility

As a threshold issue, we must determine if the '671 patent is eligible for post-grant review. The post-grant review provisions of the America Invents Act (AIA) apply to a patent that contains a claim with an effective filing date on or after March 16, 2013. *See* AIA, Pub. L. No. 112-29, 125 Stat. 284 (2011), §§ 3(n)(1), 6(f)(2)(A). The statute defines the "effective filing date" as

> (A) if subparagraph (B) does not apply, the actual filing date of the patent or the application for the patent containing a claim to the invention; or
>
> (B) the filing date of the earliest application for which the patent is entitled, as to such invention, to a right of priority

[13] We enter a Decision denying Institution in PGR2021-00092 concurrent with entering the present Decision.

> under section 119, 365(a), 365(b), 386(a), or 386(b) or to the benefit of an earlier filing date under section 120, 121, 365(c), or 386(c).

35 U.S.C. § 100(i)(1).

Determining whether a patent is subject to the first-inventor-to-file provisions of the AIA, and therefore eligible for post-grant review, is straightforward when the patentee filed the application from which the patent issued on or after March 16, 2013, without any priority claim to an application filed prior to March 16, 2013. The application that matured into the '671 patent is such an application. The earliest priority claim for the '671 patent is an application filed August 1, 2013. Ex. 1001, code (63). Accordingly, the effective filing date of the '671 patent is no earlier than August 1, 2013, making it eligible for post-grant review.

Additionally, "[a] petition for a post-grant review may only be filed not later than the date that is 9 months after the date of the grant of the patent." 35 U.S.C. § 321(c). The '671 patent issued December 1, 2020, and the Petition was accorded a filing date of June 7, 2021, just over 6 months after the grant of the '671 patent. Ex. 1001, code (45); Paper 3, 1. Accordingly, Petitioner timely filed the Petition.

B. Level of Ordinary Skill in the Art

The level of skill in the art is "a prism or lens" through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Petitioner contends a person of ordinary skill in the art

> at the time of the alleged invention in May 2020 would have had at least a B.S. degree in computer science, computer engineering, or electrical engineering (or equivalent experience) and would have had at least two years of practical experience with applying

> web-based service computing technologies, including the then-current technologies such as HTML, XML, Java, and JavaScript. The level of ordinary skill in the art would be the same if the alleged priority date of the '671 patent was in August 2013.

Pet. 25 (referencing Ex. 1002 ¶ 27).

Patent Owner does not define the level of ordinary skill and, instead, states that we should "apply[] the Petition's asserted definition of the level of ordinary skill in the art." Prelim. Resp. 44.

For the purposes of this Decision, we adopt Petitioner's proposed level of ordinary skill in the art. We determine that Petitioner's definition is consistent with the prior art of record and the skill reflected in the Specification of the '671 patent, based on our review of the limited record.

C. Claim Construction

In post-grant reviews, we interpret a claim "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.200(b). Under this standard, we construe the claim "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." *Id.*

Petitioner contends that no claim terms need an express construction. Pet. 25. Patent Owner states that "the Petition does not appear to present any issues that require the Board to construe the claims to resolve the issues at the institution stage." Prelim. Resp. 44. We agree with the parties that, at least at this stage of the proceeding, we need not expressly construe any claim term. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the

controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Applicable Law

Petitioner's asserted grounds of unpatentability are based on obviousness under 35 U.S.C. § 103, and the requirements for a specification, under 35 U.S.C. § 112. Pet. 4.

> Section 103[] forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

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 available, objective evidence, such as commercial success, long felt but unsolved needs, and failure of others.[14] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

"[O]bviousness must be determined in light of *all the facts*, and . . . a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine" teachings from multiple references. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (emphasis added); *see also PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1196 (Fed. Cir. 2014) ("The presence or

[14] The parties do not direct us to any objective evidence of non-obviousness in the current record.

absence of a motivation to combine references in an obviousness determination is a pure question of fact.").

Section 112, paragraph a, requires, in relevant part, a patent specification to "contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same." 35 U.S.C. § 112(a) (2011). The written description inquiry is a question of fact, is context-specific, and must be determined on a case-by-case basis. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). "[T]he test for sufficiency [of the written description] is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Id.* "One shows that one is 'in possession' of *the invention* by describing *the invention*, with all its claimed limitations." *Lockwood v. Am. Airlines*, *Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). In some instances, a patentee can rely on information that is well known in the art to satisfy the written description requirement. *Ariad Pharm.*, 598 F.3d at 1351 ("[T]he level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.").

"[W]hether a patent satisfies the enablement requirement is a question of law based on underlying factual findings." *Pac. Biosciences of California, Inc. v. Oxford Nanopore Techs., Inc.*, 996 F.3d 1342, 1350 (Fed. Cir. 2021) (citing *McRO, Inc. v. Bandai Namco Games America Inc.*, 959 F.3d 1091, 1096 (Fed. Cir. 2020)). "A claim is not enabled if . . . a relevant

artisan would not be able to practice the claimed invention 'without undue experimentation,' a determination typically guided by" the so-called *Wands* factors. *Id.* (citing *In re Wands*, 858 F.2d 731, 736–737 (Fed. Cir. 1988)).

E. Ground 1: claims 1, 2, 4, 5, 9, 10, 12, and 13 as unpatentable over Sarukkai and Rowley

Petitioner contends that claims 1, 2, 4, 5, 9, 10, 12, and 13 are unpatentable over the combined teachings of Sarukkai and Rowley. Pet. 4, 26–56. Below, we discuss the scope and content of the prior art[15] and any differences between the prior art and claimed subject matter, on a limitation-by-limitation basis, for the challenged claims. We also analyze Petitioner's contentions with respect to why a person having ordinary skill in the art would have been motivated to combine the teachings of Sarukkai and Rowley.

1. Independent claim 1

a) Motivation to combine

Petitioner contends that a person having ordinary skill in the art would have been motivated to combine teachings from Sarukkai and Rowley to arrive at the invention of claim 1, and would have had a reasonable expectation of success in combining the teachings. Pet. 29. Petitioner contends that both Sarukkai and Rowley are directed to improving identity management, with each reference having complementary techniques in solving this problem. *Id.* at 29–30 (referencing Ex. 1004 3:18–21; Ex. 1005 ¶¶ 13, 27; Ex. 1002 ¶ 78).

[15] In addition to any discussion of the scope and content of the prior art in our analysis, we summarize the asserted prior art in Sections I.E.1–8.

Petitioner reasons that modifying Sarukkai with Rowley's teachings would have improved security of Sarukkai's system. Pet. 30. Petitioner explains that "having a proxy intermediate traffic between the client and IdP opened Sarukkai's system to one type of man-in-the-middle attack Rowley itself identified—a malicious party intercepting a user's credentials by using a proxy to impersonate an IdP." *Id.* (referencing Ex. 1005 ¶¶ 3, 13, 25, 30, Fig. 3). Petitioner concludes that a person having ordinary skill in the art "would have looked to Rowley to prevent such attacks because it identified the vulnerability and expressly disclosed techniques for remedying it; for example, not using a proxy between the client and IdP and using secure communications between those components." *Id.* (referencing Ex. 1005 ¶¶ 26–40, Fig. 4; Ex. 1003 ¶ 79).[16]

Petitioner adds that "using a secure channel between a client and IdP would have been combining known prior art elements to yield predictable results. Creating a secure channel between a client and IdP for purposes of identity management was known method for preventing man-in-the-middle attacks and for structuring an identity management system." Pet. 31 (referencing Ex. 1002 ¶ 82).

Patent Owner argues that a person having ordinary skill in the art "would not have been motivated to modify Sarukkai based on Rowley's teaching because doing so would remove the alleged benefits of Sarukkai's

[16] Petitioner also contends that a 2015 blog post by Patent Owner (Ex. 1012) criticized Sarukkai for the very problem Petitioner contends Rowley would remedy. Because we find, on the current record, that Petitioner provides an adequate showing of a motivation to combine the teachings of Sarukkai and Rowley without considering this, we do not address this evidence at this time.

system." Prelim. Resp. 51.[17] Patent Owner argues that Sarukkai and Rowley have different objectives—Sarukkai seeks to monitor employee's use of cloud-based services, and Rowley seeks to protect from man-in-the-middle attacks. *Id.* at 51–52.

Patent Owner argues that Sarukkai's proxy server is a fundamental component of it monitoring system. Prelim. Resp. 52–54. Patent Owner adds that, during prosecution of the application that matured into Sarukkai, the applicant argues that its system was different from single sign-on systems that allow for direct sign-on with an IdP, as Sarukkai's system inserts a proxy to monitor the network. *Id.* at 54. Patent Owner concludes that a person having ordinary skill in the art would have "understood that a fundamental feature of their invention is the monitor proxy server and thus would not be motivated to remove the monitor proxy server as suggested by Petitioner." *Id.* at 55. Patent Owner continues that "the ***entire purpose*** of Sarukkai is installing a proxy server between the client device, application server, and the IdP—specifically one that directs the user device to and from the cloud application server and IdP." *Id.*

We have considered Patent Owner's arguments, but find that Petitioner's arguments and evidence are sufficient, at this stage of the proceeding, to show that a person having ordinary skill in the art would have been motivated to combine the teachings of Sarukkai and Rowley.

[17] Separately, Patent Owner argues that Petitioner's reliance on Patent Owner's 2015 blog post does not provide support for Petitioner's reasoning, as the effective filing date of the '671 patent pre-dates the blog post. Prelim. Resp. 51. As we state above, we do not rely on this evidence at this time.

Patent Owner improperly emphasizes that Petitioner's modification of Sarukkai deviates from Sarukkai's claimed *invention*, including how that claimed invention was argued before the Office. However, the teachings of a prior art reference are not limited to its invention, but are available for all that it teaches. *In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983) ("The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain."). Here, the embodiment of Sarukkai's Figure 4, the embodiment on which Petitioner relies, discloses network traffic monitoring system 30 having two components—"a first reverse proxy server 32 acting as a network intermediary between the client device 10 and an identity provider 18 and a second reverse proxy server 34 acting as a network intermediary between the client device 10 and the cloud service 12." Ex. 1004, 7:60–65, Fig. 4. Petitioner's modified system would still include a second reverse proxy server 34, which would monitor network traffic between the client device and the cloud-based service. *See* Pet. 39 ("In that embodiment, the IdP reverse proxy server would not be needed, but the service reverse proxy server would remain."). That is, the modified system would still perform Sarukkai's monitoring purpose. *See id.*

Indeed, Sarukkai expressly discloses (or at least suggests) this exact modified system in an alternative embodiment to the embodiment of Figure 4. As Petitioner recognizes, Sarukkai states that "a user may login to an identity provider directly . . . . The network traffic monitoring system can be applied in such [a] scenario[s] to redirect network traffic through a network intermediary." Ex. 1004, 9:54–60. We find, on the current record,

that this statement, which Patent Owner characterizes as "an odd one-off statement" (Prelim. Resp. 55 n.2), reflects Petitioner's modified system. That is, second reverse proxy server 34 acts as the network intermediary between client device 10 and cloud service 12 to monitor the client device's use of the cloud-based service. Similarly, the embodiment of Sarukkai's Figure 6 identifies service reverse proxy 40 as the "network traffic monitoring system." *Id.* at 10:14–59.

In this way, Sarukkai's express teaching belies Patent Owner's argument that Sarukkai's "***entire purpose***" is to install a proxy between a client device and IdP. *See* Prelim. Resp. 55. Sarukkai's system would achieve its monitoring objective with a proxy between the client and application server only. *See, e.g.*, Ex. 1004, 8:58–65 ("During a connection session, the service reverse proxy server 34 continuously rewrites the response web address for communications received from the client server 10 and the cloud service 12 so that the network traffic (requests and responses) between the cloud service and the client server is directed through to the service reverse proxy server 34, without the client device 10 or the cloud service 12 being aware of the service reverse proxy server."); Fig. 6 (depicting the service reverse proxy and IdP proxy as separate entities).

We have reviewed Dr. Nielson's testimony on which Patent Owner relies, and find it insufficient to demonstrate a deficiency in Petitioner's reasoning, based on the current record. Like Patent Owner's arguments, this testimony focuses on Sarukkai's claimed invention, not its other teachings. *See* Ex. 2001 ¶¶ 125–127. Dr. Nielson testifies that "neither *the claims nor any other disclosures* of Sarukkai support [a] direct connection from the user device to the IdP," in dismissing Sarukkai's disclosure of an alternative to

the embodiment of Figure 4 that includes a client device directly connecting with an IdP. Ex. 2001 ¶ 128 (emphasis added). As we discussed above, it is improper to limit the teaching of a prior art patent to what it claims. Also, Dr. Nielson fails to explain why the disclosure of an alternative embodiment, by itself, is insufficient to suggest, at least, Petitioner's proposed modification, such that "other disclosures" in Sarukkai are required.

Additionally, on the current record, neither Patent Owner nor Dr. Nielson directs us to disclosures in Sarukkai that would have discouraged a person having ordinary skill in the art to use a proxy limited to monitoring traffic between a client and application server, such that a proxy would not be between the client and IdP. *See* Prelim. Resp. 58–59; *see, e.g.*, *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) ("A reference may be said to teach away [from a proposed combination of teachings] when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference."; *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (holding that, to teach away, the prior art must "criticize, discredit, or otherwise discourage" the combined teachings).

On the current record, we determine that Patent Owner's argument that "Sarukkai's alleged invention improves the prior art ***without*** a proxy server by ***adding*** it; whereas Rowley improves the prior art ***with*** a proxy server by ***removing*** it," would not discourage the proposed modification. Prelim Resp. 58. Patent Owner groups Sarukkai's proxy functions together—serving as a proxy for both the application server and IdP. As we have discussed above, Sarukkai at least suggests separating these functions, with a proxy between the client device and application server but no proxy between the client device and IdP.

In conclusion, we find, on the current record, that Petitioner provides a reason for combining the teachings of Sarukkai and Rowley, with a rational underpinning supporting the reasoning. *See KSR Int'l Co.*, 550 U.S. at 418 (stating that, to facilitate the analysis of an obviousness position, the proponent should provide "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness").

b) Preamble

The preamble of claim 1 recites "[a] method for improving secure access to cloud-based application programs." Ex. 1001, 13:63–64. Petitioner contends that Sarukkai discloses a system that improves secure access to cloud-based application programs. Pet. 31–32 (referencing Ex. 1004, code (57) (Abstract), 3:34–41, 3:15–21, 3:22–25, 8:6–9; Ex. 1002 ¶¶ 83, 84). Upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai teaches or suggests the subject matter of the preamble of claim 1. In view of this determination, we need not determine, at this stage of the proceeding, whether the preamble is limiting. Patent Owner does not dispute Petitioner's contentions with respect to Sarukkai and the preamble at this time.

c) Limitation 1[a][i]

The method of claim 1 includes the step of "receiving, by an identity provider, a single-sign-on request from a user device for access to a cloud-based application program." Ex. 1001, 13:65–67 (limitation 1[a][i][18]). Petitioner acknowledges that the teachings of Sarukkai differ from the

[18] We, like Patent Owner, adopt Petitioner's shorthand grouping and designation of the subject matter of claim 1.

claimed invention, in that "Sarukkai did not expressly disclose the user device *directly* providing credentials to the IdP." Pet. 33. Petitioner contends that a person having ordinary skill in the art "would have found it obvious to add that step based on the disclosures in Sarukkai and Rowley." *Id.* (referencing Ex. 1002 ¶¶ 85, 124).

Petitioner explains that, in the embodiment of Sarukkai's Figure 5, a client device provides log-in credentials to an IdP reverse proxy server, which then forwards the credentials to the IdP server, as part of a single sign-on scheme. Pet. 33–34 (referencing Ex. 1004, 3:34–44, 3:60–64, 8:31–38; 9:21–29, Figs. 4, 5; Ex. 1002 ¶¶ 86, 87) . Petitioner adds that this single-sign on is so the client can access a cloud-based application program. *Id.* Petitioner contends that a person having ordinary skill in the art would have modified Sarukkai's approach to transmit the single sign-on request directly to the IdP from the client, based on Rowley's teachings. *Id.* at 34 (referencing Ex. 1002 ¶ 88).

First, Petitioner contends that Sarukkai discloses that a user may log-in directly to the IdP server. Pet. 35 (referencing Ex. 1004, 9:54–55). Petitioner explains that Sarukkai additionally discloses a network configuration where a client device performs a single sign-on directly with an IdP. *Id.* (referencing Ex. 1004, 4:26–30, Fig. 1; Ex. 1002 ¶ 89).

Second, Petitioner contends that Rowley discloses a client device transmitting single sign-on credentials directly to an IdP. Pet. 36. Petitioner explains that "Rowley designed a system for securely authenticating a user without using a proxy." *Id.* (referencing Ex. 1005, code (57); Ex. 1002 ¶ 90). Petitioner contends that Rowley discloses that its client device submits non-replayable credentials directly to the IdP, decreasing the chance

for a man-in-the-middle attack. *Id.* (referencing Ex. 1005 ¶ 30; Ex. 1002 ¶ 91).

Petitioner explains that, in Sarukkai's modified system, "[a]fter removing the IdP reverse proxy, the user device would transmit the SSO request to the IdP." Pet. 38; *see also id.* at 39 (comparing Sarukkai's process as depicted in Figure 5 with a modified version of Figure 5, with operations 3 and 4 combined into a single operation). Petitioner contends that "[t]he modified configuration would allow Sarukkai to maintain its goal of monitoring traffic (e.g., through the service reverse proxy server), while decreasing the chance of a man-in-the-middle attack by removing the IdP reverse proxy." *Id*. at 39 (referencing Ex. 1004, 7:57–65). Petitioner adds that Sarukkai at least suggests this modification, as it states that "a user may login to an identity provider directly." *Id.* (referencing Ex. 1004, 9:54–55).

Upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai, as modified by Rowley, teaches or suggests the subject matter of limitation 1[a][i] of claim 1. Patent Owner does not dispute Petitioner's contentions with respect to Sarukkai, as modified by Rowley, with respect to disclosing the *subject matter* of this limitation. We address Patent Owner's arguments that a person having ordinary skill in the art would not have modified Sarukkai as Petitioner proposes above, in connection with our analysis of Petitioner's contentions directed to motivation to combine the teachings of Sarukkai and Rowley.

d) Limitation 1[a][ii]

The method of claim 1 also recites the step where "the user device sends a request for access to the cloud-based application program to an

application server and receives the cloud network location of the identity provider from the application server." Ex. 1001, 13:67–14:3 (limitation 1[a][ii]). Petitioner contends that its proposed modified system discloses a client device sending a request to access a cloud-based application and the application server redirecting the client device to an IdP. Pet. 40.

Petitioner contends that Sarukkai discloses that a user operating a client device attempts to access a cloud-based application at an application server and, in response, the application server sends the user the network location of the IdP reverse proxy server. Pet. 40–41. Petitioner contends that it would have been obvious to have the response include the network location of the IdP server. *Id.* at 41 (referencing Ex. 1002 ¶¶ 98–99). Petitioner explains that, once the IdP reverse proxy server is removed (the modification discussed in connection with our analysis of limitation 1[a][i]), "the service provider would redirect the client to the IdP and the client would provide credentials to the IdP directly, as was conventionally done in the industry." *Id.* at 42. "When Sarukkai and Rowley are combined, Step 2 of Sarukkai would be modified so the service provider gives the cloud network location of the IdP to the client." *Id.* at 43; *see also id.* at 44 (showing a modified version of Sarukkai's Figure 5, showing the modified step 2).

Upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai, as modified by Rowley, teaches or suggests the subject matter of limitation "1[a][ii]" of claim 1. Patent Owner does not dispute Petitioner's contentions with respect to Sarukkai, as modified by Rowley, and the subject matter of this limitation. We address

Patent Owner's arguments that a person having ordinary skill in the art would not have modified Sarukkai as Petitioner proposes above, in connection with our analysis of Petitioner's contentions directed to motivation to combine the teachings of Sarukkai and Rowley.

e) Limitation 1[a][iii]

The method of claim 1 also requires "the identity provider [be] configured to authenticate computer security validation requests for the application program." Ex. 1001, 14:4–6 (limitation 1[a][iii]). Petitioner contends that "[t]he IdP in Sarukkai authenticated requests for access to a cloud service for the service provider." Pet. 44 (referencing Ex. 1004, 9:9–16, 4:23–28, 4:34–37, 8:16–19; Ex. 1002 ¶¶ 103, 126). Petitioner adds that Rowley discloses this subject matter as well. *Id.* at 45 (referencing Ex. 1005 ¶ 30; Ex, 1002 ¶ 104).

Upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai and Rowley teach or suggest the subject matter of limitation 1[a][iii] of claim 1. Patent Owner does not dispute Petitioner's contentions with respect to Sarukkai and Rowley, and the subject matter of this limitation.

f) Limitation 1[b][i]

The method of claim 1 also recites the step of "validating, by the identity provider, the single-sign-on request." Ex. 1001, 14:7–8 (limitation 1[b][i]). Petitioner contends that both Sarukkai and Rowley disclose that their IdPs authenticate a user. Pet. 45 (referencing Ex. 1004, 8:34–44; Ex. 1005 ¶ 39; Ex. 1002 ¶¶ 105, 106, 127).

Upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai and Rowley teach or suggest the subject matter of limitation 1[b][i] of claim 1. Patent Owner does not dispute Petitioner's contentions with respect to Sarukkai and Rowley, and the subject matter of this limitation.

g) Limitation 1[b][ii]

The method of claim 1 also recites the step of "in response to validating the single-sign-on request, directing, by the identity provider, the user device to a cloud network location of an application proxy server with a valid identification assertion." Ex. 1001, 14:8–12 (limitation 1[b][ii]). Petitioner acknowledges that Sarukkai differs from the claimed invention in that Sarukkai's IdP reverse proxy, rather than its IdP, directs the client device to the cloud network location of the service reverse proxy. Pet. 45. Petitioner contends that a person having ordinary skill in the art would have found the subject matter of this limitation obvious in view of the combined teachings of Sarukkai and Rowley, where the IdP reverse proxy is removed. *Id.* (referencing Ex. 1002 ¶¶ 107–109, 128). Petitioner explains that "[o]nce the IdP reverse proxy is removed . . ., the IdP would transmit the redirect URL and authentication token directly to the client. In doing so, the IdP would write the redirect URL to go to the service reverse proxy server." *Id.* at 47; *see also id.* at 46–48 (describing Sarukkai's method of Figure 5 and how that method is modified); Ex. 1002 ¶¶ 110–112.

Upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai, as modified by Rowley, teaches or

suggests the subject matter of limitation 1[b][ii] of claim 1. Patent Owner does not dispute Petitioner's contentions with respect to Sarukkai as modified by Rowley, and the subject matter of this limitation.

h) Limitation 1[c][i]

The method of claim 1 also includes the step where "the user device thereafter communicates with the application program via a URL rewritten to go through the application proxy server, the URL originally addressed to the application program." Ex. 1001, 14:12–15 (limitation 1[c][i]). Petitioner contends that "[t]he client in Sarukkai communicated with the service provider via a URL that was rewritten to go through the service reverse proxy. Once the client received the redirect URL and token, it connected with the service reverse proxy as if it was connecting to the service provider." Pet. 48–49 (referencing Ex. 1004 9:36–45). Petitioner concludes that a person having ordinary skill in the art would have found it obvious that "the user device in the Sarukkai-Rowley combination would communicate with the application program via a URL rewritten that would go through the service RP (application proxy server) instead of a URL that was originally addressed to the application provider (e.g., abc.service.com)." *Id.* at 49; Ex. 1004, 8:58–65, 9:49–53; Ex. 1002 ¶¶ 113, 129); *see also* Pet. 50 (showing a modified version of Sarukkai's Figure 5, reflecting the operation of the proposed combination).

Patent Owner argues that Petitioner's "combination does not disclose a URL rewritten through an application proxy server." Prelim. Resp. 45. Patent Owner argues that, in Sarukkai, it is the IdP proxy that rewrites the URL and Petitioner's proposed modification removes the IdP proxy. *Id.* at 46–48.

Patent Owner argues that, in the '671 patent, it is the response from the IdP that is modified to arrive at a rewritten URL, not the original request to the IdP, as would need to be done under Petitioner's proposed modification. Prelim. Resp. 49 (referencing Ex. 2001 ¶ 115). Patent Owner concludes that "[e]ven if the IdP of the proposed Sarukkai-Rowley combinations were ***mapping*** the request for a service provider to a service proxy, there is no modification of a response along with the associated rewriting that accompanies it." *Id.* (referencing Ex. 2001 ¶ 116).

We have considered Patent Owner's argument, but find that Petitioner's arguments and evidence are sufficient, at this stage of the proceeding, to demonstrate that the combination of teachings of Sarukkai and Rowley arrive at the subject matter of limitation 1[c][i]. Petitioner explains how the IdP would directly communicate the URL to the client device and that it would have been obvious to have that URL redirected to the service proxy server. Pet. 46–50. Patent Owner seems to require that IdP's direct communication include the original URL of the application server, which is then somehow modified, and then with the modified communication including the rewritten URL. *See* Prelim. Resp. 48–49.

Patent Owner bases its argument on how the process is disclosed in an exemplary embodiment of the '671 patent. We do not read claim 1 to be so limited. Claim 1 recites the step of

> directing, by the identity provider, the user device to a cloud network location of an application proxy server with a valid identification assertion, the user device thereafter communicates with the application program via a URL rewritten to go through the application proxy server, the URL originally addressed to the application program, the application proxy server not co-located with the application server.

Ex. 1001, 14:9–15. This language merely requires that the URL be addressed originally to the application server. On the current record, we do not read this language to require the IdP to respond with the URL originally addressed to the application program. For example, the plain language of the claim seems to encompass a process where a URL received by the IdP (originally addressed URL) is for the application program and the IdP then rewrites that original URL. Patent Owner does not explain adequately why we should read into this limitation the exemplary embodiment of the '671 patent where "[t]he rewriting described in the '671 patent is the response from an identity provider." *See* Prelim. Resp. 49. Said another way, we understand that this step requires the IdP to perform the "directing" action, but we do not understand that the directing requires the URL originally addressed to the application program to be part of that communication.

Accordingly, upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai, as modified by Rowley, teaches or suggests the subject matter of limitation 1[c][i] of claim 1.

i) Limitation 1[c][ii]

Finally, the method of claim 1 requires "the application proxy server not [be] co-located with the application server." Ex. 1001, 14:15–17 (limitation 1[c][ii]). Petitioner contends that Sarukkai discloses the subject matter of this limitation. Pet. 50–51. Petitioner explains that, in the embodiment of Sarukkai's Figure 5, "the service reverse proxy was located at a different web location (service1.abc.com) from the service provider (service1.com)." *Id.* at 50. Petitioner adds that "Sarukkai explain[s] that the

service reverse proxy could be on a third party private data network . . ., [or] "could also be installed on the publicly-available internet." *Id.* at 51 (referencing Ex. 1004, 11:35–44; Ex. 1002 ¶¶ 114, 115, 130).

Upon review of the information in the Petition and corresponding evidence, we determine Petitioner has made a sufficient showing, at this stage of the proceeding, that Sarukkai teaches or suggests the subject matter of limitation 1[c][ii] of claim 1. Patent Owner does not dispute Petitioner's contentions with respect to Sarukkai and the subject matter of this limitation.

j) Conclusion with respect to claim 1

For the reasons provided above, we conclude, on the current record, that Petitioner sufficiently demonstrates that it is more likely than not that claim 1 is obvious under 35 U.S.C. § 103 over Sarukkai and Rowley.

2. Independent claim 9

Petitioner groups the limitations of claim 9 with the limitations of claim 1. *See* Pet. 31–51. Similarly, Patent Owner directs its arguments to claims 1 and 9 as a group. *See* Prelim. Resp. 44–59. For the same reasons provided above, in connection with our analysis of claim 1, we conclude, on the current record, that Petitioner sufficiently demonstrates that it is more likely than not that claim 9 is obvious under 35 U.S.C. § 103 over Sarukkai and Rowley.

3. Dependent claims 2, 4, 5, 10, 12, and 13

Claims 2, 4, and 5 depend directly from claim 1, and claims 10, 12, and 13 depend directly from claim 9. Ex. 1001, 14:19–15:53. Also, claim 2 recites essentially the same subject matter as claim 10, claim 4 recites essentially the same subject matter as claim 12, and claim 5 recites essentially the same subject matter as claim 13. *See id.* Petitioner contends

that the subject matter of these dependent claims would have been obvious to a person having ordinary skill in the art over the combined teachings of Sarukkai and Rowley. Pet. 51–56. Patent Owner does not separately argue any of these dependent claims.

We have reviewed the information in the Petitioner, and conclude, on the current record, that Petitioner sufficiently demonstrates that it is more likely than not that claims 2, 4, 5, 10, 12, and 13 are unpatentable under 35 U.S.C. § 103 over Sarukkai and Rowley.

F. Ground 2: claims 6 and 14 as unpatentable over Sarukkai, Rowley, and Song

Claim 6 depends from claim 1 and claim 14 depends from claim 9, and both dependent claims recite substantially similar subject matter. *See* Ex. 1001, 14:46–50, 15:54–59. We have reviewed the information in the Petitioner, and conclude, on the current record, that Petitioner sufficiently demonstrates that it is more likely than not that claims 6 and 14 are unpatentable under 35 U.S.C. § 103 over Sarukkai, Rowley, and Song. Specifically, we determine that Petitioner has demonstrated that the combination of Sarukkai, Rowley, and Song teach or suggest the subject matter of claims 6 and 14, and that Petitioner provides reasons to combine the teachings of Song with the teachings of Sarukkai and Rowley, supported by a rational underpinning. *See* Pet. 56–62.

Patent Owner does not separately argue Ground 2, other than to rely on its arguments directed to Ground 1. *See* Prelim. Resp. 81.

G. Ground 3: claims 7 and 15 as unpatentable over Sarukkai, Rowley, and Guccione

Claim 7 depends from claim 1 and claim 15 depends from claim 9, and both dependent claims recite substantially similar subject matter. *See*

Ex. 1001, 14:51–53, 15:60–63. We have reviewed the information in the Petitioner, and conclude, on the current record, that Petitioner sufficiently demonstrates that it is more likely than not that claims 7 and 15 are unpatentable under 35 U.S.C. § 103 over Sarukkai, Rowley, and Guccione. Specifically, we determine that Petitioner has demonstrated that the combination of Sarukkai, Rowley, and Guccione teach or suggest the subject matter of claims 7 and 15, and that Petitioner provides reasons to combine the teachings of Guccione with the teachings of Sarukkai and Rowley, supported by a rational underpinning. *See* Pet. 62–66.

Patent Owner does not separately argue Ground 3, other than to rely on its arguments directed to Ground 1. *See* Prelim. Resp. 81.

H. Ground 8: claims 7, 8, 15, and 16 as unpatentable for failing to satisfy the written description and enablement requirements of 35 U.S.C. § 112(a)

Claims 7 and 15 require, in relevant part, "the identity provider [to relay] the single-sign-on request to a second identity provider for validation." Ex. 1001, 14:51–53, 15:60–63. Claims 8 and 16 recite, in relevant part,

> receiving, by the application proxy server, a request for the rewritten URL from the user device;
>
> sending a request, by the application proxy server, to the application server for the original URL addressed to the application program;
>
> receiving, by the application proxy server, a response from the application server that includes the original URL;
>
> rewriting, by the application proxy server, the original URL to go through the application proxy server;
>
> forwarding, by the application proxy server, the response from the application server, that includes the rewritten URL, to the user device.

Id. at 14:54–67; 15:64–16:11. Petitioner contends that this recited subject matter in these claims do not have written description support, nor is the recited subject matter enabled. Pet. 120–127.

With respect to the subject matter of claims 7 and 15, Petitioner contends that "[t]he '671 patent discloses only a single IdP validating an SSO request." Pet. 121. Petitioner explains that the '671 patent discloses that the user agent sends an SSO request to an IdP, that IdP validates the request, and then responds with an assertion. *Id.* at 121–122. Petitioner argues that "[n]owhere does the '671 patent disclose the IdP relaying the SSO request to a second IdP." *Id.* at 122. Petitioner concludes that a person having ordinary skill in the art "would not have understood that the applicant possessed that idea at the time the '671 patent was filed." *Id.* (referencing Ex. 1002 ¶¶ 387, 388).

Patent Owner argues that the '671 patent discloses that the SAML Proxy is an additional identity provider, in place of the original provider. Prelim. Resp. 75 (referencing Ex. 1001, 6:48–64). Patent Owner argues that a person having ordinary skill in the art would have understood "from Figure 11 that the SAML Proxy provides the same 'interface' to the client as the original IdP." *Id.* (referencing Ex. 2001 ¶ 163).

Patent Owner adds that the '671 patent discloses that proxy 101 can be an authentication intermediary. Prelim. Resp. 75–76. Patent Owner argues that "[i]n this example, both the proxy (as an authentication intermediary) and the centralized directory are identity providers." *Id.* at 76 (referencing Ex. 2001 ¶ 164).

Patent Owner also argues that a person having ordinary skill in the art would have understood "that there can be two different IdPs relaying SSO

requests because (1) IdP may be specified as a URL and (2) the URL eventually may access a centralized directory separate and different from the URL." Prelim. Resp. 76 (referencing Ex. 2001 ¶ 165). Patent Owner adds that an artisan of ordinary skill would have understood that "the IdPs would relay the SSO request because the '671 patent discloses that the proxy server itself can be a centralized directory via the directing and relaying the SSO request; in other words, the IdPs will relay the information in the same manner a proxy can relay the SSO request to an IdP." *Id.* at 76–77 (referencing Ex. 2001 ¶ 165).

Patent Owner summarizes its position by arguing that "a first IdP relaying to a second IDP makes the First IdP, by definition, an IdP proxy." *Id.* at 77 (referencing Ex. 2001 ¶ 166).

We have considered Patent Owner's arguments, but find that Petitioner's arguments and evidence are sufficient, on the current record, to demonstrate that claims 7 and 15 do not comply with § 112(a)'s written description requirement. Claim 7, for example, recites "wherein *the* identity provider relays the single-sign-on request to a second identity provider for validation." Ex. 1001, 14:51–53. That is, *the* identity provider has antecedent basis in claim 1, which is the identity provider of claim 1 that performs the validating step. In claim 7, it is the second IdP that performs the validation. That is, the method of claim 7 recites two separate IdPs, both of which must have the ability to validate log-in credentials. Patent Owner does not explain adequately how the '671 patent describes where the entities allegedly serving as IdP proxies (the SAML Proxy and proxy 101) perform any validation of authentication credentials.

Accordingly, we find, on the current record, that the Specification does not reasonably convey to an artisan of ordinary skill that the inventor had possession of the subject matter of claims 7 and 15 at the time of the invention.

With respect to claims 8 and 16, Petitioner contends that the '671 patent describes an "application proxy rewriting a URL for a target resource to redirect the URL to the application proxy," and then "send[ing] the rewritten URL to the user agent." Pet. 123. Then, the application proxy serves as an intermediary between the user agent and application server. *Id.* at 124–125. Petitioner contends that "the '671 patent does not disclose the application proxy server *receiving* a request from the user agent for the rewritten URL." *Id.* at 125. Petitioner adds that "the '671 patent [does not] disclose the application proxy server sending a request to the application server for the original URL addressed to the application program and the application server responding with the original URL." *Id.* at 125–126. Petitioner adds that the remaining subject matter of claims 8 and 16 are not disclosed. *Id.* at 126. Petitioner also contends that the subject matter of claims 8 and 16 is not enabled. *Id.* at 126–127.

With respect to the requirement of claims 8 and 16 that the application proxy server receive a request from the user for the rewritten URL, Patent Owner argues that Petitioner's position ignores that with HTTP, a response is not sent without a corresponding request. Prelim. Resp. 77–78. As such, Patent Owner points to step 1114, shown in Figure 11 of the '671 patent, where the user follows a link sent by the SAML proxy to the application proxy. *Id.* at 78. Patent Owner argues that, in obtaining this link, "the user device started this entire process in order to obtain a target resource—that

necessarily is rewritten." *Id.* Patent Owner adds that "[t]he entire purpose in contacting the application proxy at this stage of the process is to obtain the rewritten URL that it needs in order to move forward." *Id.* at 78–79. (referencing Ex 1001, 7:24–34).

We have considered Patent Owner's arguments, but find that Petitioner's arguments and evidence are sufficient, on the current record, to demonstrate that claims 8 and 16 do not comply with § 112(a)'s written description requirement. The '671 patent expressly discloses that, in response to an SSO request from the user agent, the IdP responds to the agent with an assertion and sends the agent to the SAML Proxy. Ex. 1001, 7:15–19, Fig. 11 (steps 1110 and 1111). The user agent then presents the assertion to the SAML Proxy. *Id.* at 7:19–20, Fig. 11 (step 1112). In response to this presentation, the SAML Proxy sends the user agent the link to the application proxy, which the user agent follows. *Id.* at 7:20–26, Fig. 11 (steps 1113 and 1114). Neither the detailed description nor Figure 11 indicates that, at step 1112, the user *necessarily* requests the address of the application proxy, as Patent Owner argues. Indeed, Patent Owner does not direct us to any disclosure in the Specification that indicates that the client agent is even aware, at least at step 1112, that an application proxy exists. Patent Owner seems to argue that any request by the client agent that receives a rewritten URL for the application proxy necessarily is a request for that rewritten URL. Patent Owner does not adequately support this argument.

Accordingly, we find, on the current record, that the Specification does not reasonably conveys to an artisan of ordinary skill that the inventor had possession of the subject matter of claims 8 and 16.

Because we determine, on the current record, that claims 7, 8, 15, and 16 fail to meet the written description requirement of 35 U.S.C. § 112(a), we do not separately address Petitioner's enablement arguments here. We take this opportunity to note that, although Petitioner argues that "[t]he '671 patent contains no disclosure—no direction, guidance, or working examples"—to enable the inventions of claims 7, 8, 15, and 16, Petitioner does not provide any analysis under the *Wands* factors. *See* Pet. 123, 126; *see, e.g.*, *Pac. Biosciences of California, Inc.*, 996 F.3d at 1350 (indicating that the enablement determination is *typically* guided by the factual inquiries identified in the *Wands* factors).

I. Other obviousness grounds

The U.S. Supreme Court, in *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348 (2018), held that an *inter partes* review must institute on all challenged claims or no challenged claims. The Patent Office has further determined that, if instituting a review in an AIA trial proceeding, including a post-grant review, the Board will institute on all challenged claims *and all grounds*. Consolidated Trial Practice Guide 64,[19] *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) ("Equal treatment of claims and grounds for institution purposes has pervasive support in *SAS*.").

Because we determine that the information in the Petition adequately supports grounds for all Challenged Claims, we do not reach Petitioner's alternative grounds at this stage of the proceeding. We emphasize that these grounds are part of the trial and will be evaluated during trial.

[19] Available at https://www.uspto.gov/TrialPracticeGuideConsolidated (Nov. 2019).

We also do not decide the merits of Petitioner's position as to the priority date of the Challenged Claims, which affects Ground 7. *See* Pet. 16–23; Prelim. Resp. 21–36.[20] We believe this contention will benefit from further development at trial, and we will decide the merits as necessary on a complete trial record.

IV. CONCLUSION

After considering the evidence and arguments presently before us, we determine Petitioner has demonstrated that it is more likely than not that at least one of the Claims Challenged is unpatentable. Accordingly, we institute a post-grant review.

V. ORDER

In consideration of the foregoing, it is:

ORDERED that, pursuant to 35 U.S.C. § 324(d), a post-grant review is instituted as to claims 1, 2, 4–10, and 12–16 of U.S. Patent No. 10,855,671 B2; and

[20] Patent Owner argues that we should "deny Petitioner's written description and enablement arguments (part of Petitioner's priority date argument) at least under 35 U.S.C. § 325(d) because the Patent Office Examiner already considered and rejected these arguments during prosecution of the application that matured into the '671 patent." Prelim. Resp. 22. Patent Owner argues that the Manual of Patent Examination Procedure requires an examiner to evaluate whether claims satisfy the written description and enablement requirements of § 112. *Id.* Patent Owner argues that, because the claims were allowed, the examiner must have already addressed these issues. We do not agree with Patent Owner. Such a position would preclude us from every determining the proper priority date for a specific claim or whether the claim meets the requirements of 35 U.S.C. § 112(a).

FURTHER ORDERED that pursuant to 35 U.S.C. § 324(d) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this Order.

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