

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KAYAK SOFTWARE CORP., OPENTABLE, INC.,
PRICELINE.COM LLC, and THE PRICELINE GROUP INC.,
Petitioner,

v.

INTERNATIONAL BUSINESS MACHINES CORP.,
Patent Owner.

Case IPR2016-00608
Patent 7,631,346 B2

Before DAVID C. MCKONE, BEVERLY M. BUNTING, and
MICHELLE N. WORMMEESTER, *Administrative Patent Judges*.

WORMMEESTER, *Administrative Patent Judge*.

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

I. INTRODUCTION

KAYAK Software Corp., OpenTable, Inc., Priceline.com LLC, and The Priceline Group Inc. (collectively, “Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–20 of U.S. Patent No. 7,631,346 B2 (Ex. 1001, “the ’346 patent”). Pursuant to 37 C.F.R. § 314, we instituted an *inter partes* review of claims 1, 3, 12, 14, 15, and 18 on one ground of unpatentability. Paper 20 (“Inst. Dec.”); *see* 35 U.S.C. § 314(a).

After institution of trial, International Business Machines Corporation (“Patent Owner”) filed a Patent Owner Response (Paper 32, “PO Resp.”), and Petitioner filed a Reply (Paper 44, “Pet. Reply”). With our authorization, Patent Owner subsequently filed a Sur-Reply. Paper 47 (“PO Sur-Reply”). Petitioner also filed a Motion to Exclude (Paper 51), which we address below. In addition, Patent Owner filed four motions to seal. Papers 23, 34, 46, 49. We already have addressed the first motion to seal in a separate decision (*see* Paper 37), and we address the remaining three motions to seal below. On April 27, 2017, we conducted an oral hearing. A copy of the transcript is included in the record. Paper 66 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 3, 12, 14, 15, and 18 of the ’346 patent are unpatentable. This final written decision is issued pursuant to 35 U.S.C. § 318(a).

II. BACKGROUND

A. *Related Proceedings*

The parties identify the following related federal district court cases: (1) *International Business Machines Corporation v. The Priceline Group Inc.*, Civil Action No. 1:15-cv-00137 (D. Del. Feb. 9, 2015); and (2) *International Business Machines Corporation v. Groupon, Inc.*, Civil Action No. 1:16-cv-00122 (D. Del. Mar. 2, 2016). Pet. 2; Paper 9, 1. The parties also identify several related requests for *inter partes* review and covered business method patent review. Pet. 2; Paper 9, 2; Paper 15, 2; Paper 57, 1.

B. *The '346 Patent*

The '346 patent is titled “Method and System for a Runtime User Account Creation Operation within a Single-Sign-On Process in a Federated Computing Environment.” Ex. 1001, at [54]. According to the '346 patent, when a user navigates domains within the Internet by accessing resources at the different domains, the user may be subjected to multiple user authentication requests, which can slow the user's navigation. *Id.* at 8:1–6. The '346 patent describes a federated computing environment in which entities may provide a user with a single-sign-on (SSO) experience, doing away with the frustration of having to authenticate to multiple domains for a single transaction. *Id.* at 10:14–16, 24–26.

An SSO process, according to one embodiment of the '346 patent, starts with an identity provider sending to a user an offer to provide access to federated resources. *Id.* at 31:21–23. In this case, the user has already been authenticated by the identity provider, meaning that the user currently has a valid session with the identity provider. *Id.* at 31:6–10. The user then

selects a federated resource, which is provided at a service provider. *Id.* at 31:29–31. If the user does not yet have a federated identity for use with a federated SSO operation, then the identity provider creates an alias (information that authenticates a user identity) for the user. *Id.* at 31:34–36. The identity provider sends to the service provider a message that requests access to the selected resource and includes the alias information for the user. *Id.* at 31:36–47, 31:58–32:3. Upon receipt of the message, the service provider retrieves the alias information. *Id.* at 32:4–7. In the event that the service provider determines that it does not have a local account for the user that links with a user account at the identity provider, the service provider creates a new account for the user based on the alias information, so that the user has an active session at the service provider. *Id.* at 32:16–19, 41–46. After creating the linked user account, the service provider performs the requested resource access. *Id.* at 33:4–5.

C. Illustrative Claim

Claims 1, 15, and 18 are independent. Claims 3, 12, and 14 depend from claim 1. Claim 1 is illustrative of the subject matter at issue:

1. A method for managing user authentication within a distributed data processing system, wherein a first system and a second system interact within a federated computing environment and support single-sign-on operations in order to provide access to protected resources, at least one of the first system and the second system comprising a processor, the method comprising:
triggering a single-sign-on operation on behalf of the user in order to obtain access to a protected resource that is hosted by the second system, wherein the second system requires a user account for the user to complete the single-sign-on operation prior to providing access to the protected resource;

receiving from the first system at the second system an identifier associated with the user; and

creating a user account for the user at the second system based at least in part on the received identifier associated with the user after triggering the single-sign-on operation but before generating at the second system a response for accessing the protected resource, wherein the created user account supports single-sign-on operations between the first system and the second system on behalf of the user.

D. The Instituted Ground

Petitioner asserts in its Petition various grounds that include anticipation under 35 U.S.C. § 102 and obviousness under 35 U.S.C. § 103. Pet. 4. We instituted *inter partes* review on one ground of unpatentability: anticipation of claims 1, 3, 12, 14, 15, and 18 by Sunada.¹ In support of the instituted ground, Petitioner proffers the declaration of James Olivier (Ex. 1011).² With its Response, Patent Owner submits the Declaration of Susan Spielman (Ex. 2039). The transcripts of the depositions of Mr. Olivier and Ms. Spielman are entered in the record as Exhibits 2037 and 1016, respectively.

¹ Sunada, Japanese Publ'n No. Tokkai 2004-302907A, published Oct. 28, 2004 (Ex. 1005).

² Petitioner originally submitted the declaration of Ray Larson (Ex. 1002) in support of the instituted ground. With our authorization, Petitioner subsequently submitted the substitute declaration of James Olivier (Ex. 1011). See Paper 24, 1. Petitioner states that Mr. Olivier “has reviewed and concurs with the original declaration” and that “[t]he substitute declaration is identical to the original declaration except for an introductory paragraph, the CV, the Education and Professional Experience Section, and several omitted paragraphs.” *Id.* Petitioner also states that “Patent Owner has reviewed the substitute declaration and has indicated to Petitioner that Patent Owner has no objections to the substitute declaration.” *Id.*

III. ANALYSIS

A. Claim Construction

For an *inter partes* review, we construe claims in an unexpired patent by applying the broadest reasonable interpretation in light of the specification of the patent in which they appear. *See* 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). Under this standard, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). A “claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer,” however, and clearly set forth a definition of the claim term in the specification. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

The parties separately argue proposed constructions for various limitations of the claims. *See* Pet. 18–20; PO Resp. 11–22; Pet. Reply 2–8. In light of the parties’ arguments and evidence developed during trial, we address the claim term “federated computing environment,” which appears in the preambles of independent claims 1, 15, and 18. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”).

Relying on the specification of the ’346 patent, Petitioner proposes in its Petition that a “federated computing environment” means a “loosely coupled affiliation of enterprises which adhere to certain standards of interoperability; the federation provides a mechanism for trust among those

enterprises with respect to certain computational operations for the users within the federation.” Pet. 18 (quoting Ex. 1001, 1:64–2:1). In its Response, Patent Owner proposes the same construction, adding that the term “federated computing environment” is limiting. PO Resp. 13–14. Petitioner counters, arguing that “federated computing environment” is not limiting “because that term only appears in the preamble, which the patentee used merely to state an intended use for the claimed subject matter,” the invention of the ’346 patent “is not limited to operating in a federated computing environment,” and “[t]he claim body of each independent claim defines a structurally complete invention.” Pet. Reply 2–3. According to Petitioner, that “the applicant argued that the preamble was limiting during prosecution” is not “categorically determinative,” but, rather, should be treated as a “guidepost[]” in “deciding whether a preamble is limiting.” *Id.* at 4.

Petitioner raises the argument as to whether the preamble is limiting for the first time in its Reply, even though it had an opportunity to brief this issue in its Petition. We therefore find Petitioner’s new argument in this regard waived. *See Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369–70 (Fed. Cir. 2016).

Even if we were to consider Petitioner’s argument, however, we would still find it to be unpersuasive. “[C]lear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (cited at PO Resp. 15). In this case, as Patent Owner points out,

“the inventors stated that the preambles of [c]laims 1, 15, and 18 limit those claims,” and they “also used the term ‘federated computing environment’ to distinguish their claims over a reference cited during prosecution.” PO Resp. 15 (citing Ex. 1003, 15–22); *see also* Ex. 1003, 14–15 (“the subject disclosure provides for a ‘runtime user account creation operation within a single-sign-on process’ within the context of a ‘federated computing environment” and “[t]he ‘federated’ context of the subject disclosure is evident from the preamble in each independent claim”); *id.* at 16 (“the ‘federated computing environment’ limitations of the preamble[s] are limiting”); *id.* at 17 (“Ting, the alleged anticipatory prior art, is not a ‘federated’ teaching. For that reason alone, the reference cannot and does not anticipate any pending claim.”). Based on the record before us, we conclude that the term “federated computing environment” is limiting.

We do not conclude, however, that the scope of the term is limited to an affiliation of *enterprises*, as both parties urge. Pet. 18; PO Resp. 13. Indeed, the specification of the ’346 patent teaches that, “[i]n the context of the present invention, a federation is a set of distinct *entities*, such as enterprises, organizations, institutions, etc., that cooperate to provide a single-sign-on, ease-of-use experience to a user.” Ex. 1001, 10:62–64 (emphasis added). According to the specification of the ’346 patent, an entity “generally refers to an organization, an individual, or a system that operates on behalf of an organization, an individual, or another system.” *Id.* at 8:31–33. We recognize that the portion of the ’346 patent that the parties cite specifies *enterprises*, but, in light of the specification of the patent as a whole, we find this instance of “enterprises” to illustrate an example of the types of entities that may make up a federation. *Compare id.* at 10:62–64

(“[i]n the context of the present invention, a federation is a set of distinct entities, such as enterprises”), *with id.* at 1:64–2:1 (“[a] federation is a loosely coupled affiliation of enterprises”).

Accordingly, we determine that, under a broadest reasonable interpretation in light of the specification of the ’346 patent, the term “federated computing environment” refers to “an environment having a loosely coupled affiliation of entities that adhere to certain standards of interoperability; the federation provides a mechanism for trust among those entities with respect to certain computational operations for the users within the federation.” Based on our construction, the scope of this term encompasses enterprises, but is not limited to enterprises.

B. Antedating Sunada

As a preliminary matter, we first consider whether Sunada qualifies as prior art under § 102(a).³ Petitioner asserts that Sunada qualifies as prior art under § 102(a) against the challenged claims of the ’346 patent, which has an effective filing date of April 1, 2005. Pet. 4; Ex. 1001, at [22]. Sunada is a Japanese publication. Ex. 1005, at [12], [19]. Petitioner relies on the publication date of Sunada as the prior art date under § 102(a). Pet. 4. Based on the record before us, we agree with Petitioner that the effective date of Sunada as prior art is its publication date, October 28, 2004. See Pet. 4; Ex. 1005, at [43].

³ Because the application for the ’346 patent was filed before the enactment of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), the pre-AIA version of 35 U.S.C. § 102(a) applies in this proceeding.

Patent Owner seeks to disqualify Sunada as prior art under §102(a) by establishing a date of invention prior to the publication date of Sunada. PO Resp. 38. Under § 102(a), a reference qualifies as prior art if the invention was “described in a printed publication in this or a foreign country, before the invention thereof by the applicant.” In particular, Patent Owner alleges that “the [named] inventors [of the ’346 patent] and others at IBM achieved an actual reduction to practice of [c]laims 1, 12, 15, and 18 before October 28, 2004,” the publication date of Sunada. *Id.* Patent Owner alleges additionally that “the inventors also conceived [c]laims 3 and 14 before that date, and exercised reasonably continuous diligence running to April 1, 2005, the date of IBM’s constructive reduction to practice by filing the application for the ’346 Patent.” *Id.* Thus, for claims 3 and 14, Patent Owner argues diligence from a date before the publication of Sunada until the constructive reduction to practice of the claimed invention on the filing date of the application that issued as the ’346 patent. *See also In re Enhanced Sec. Research, LLC*, 739 F.3d 1347, 1358 (Fed. Cir. 2014) (“In this case, the critical period in which ESR must demonstrate diligence spans from May 1996, when the relevant version of the Manual became available, to October 7, 1996, when Saunders filed Shipley’s patent application.”).

“In the United States, the person who first reduces an invention to practice is ‘prima facie the first and true inventor.’” *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996) (quoting *Christie v. Seybold*, 55 F. 69, 76 (6th Cir. 1893)). A reduction to practice can be an actual reduction to practice or a constructive reduction to practice. *Cooper v. Goldfarb*, 154 F.3d 1321, 1327 (Fed. Cir. 1998). An inventor “may date his patentable invention back to the time of its conception, if he connects the conception

with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act.” *Mahurkar*, 79 F.3d at 1577. In the context of antedating a reference, “reasonable diligence must be shown throughout the entire critical period, which begins just prior to the competing reference’s effective date and ends on the date of the invention’s reduction to practice.” *Perfect Surgical Techniques, Inc. v. Olympus Am., Inc.*, 841 F.3d 1004, 1007 (Fed. Cir. 2016).

Petitioner bears the burden of persuasion that the challenged claims are unpatentable, which includes the burden of establishing that any reference upon which it relies constitutes prior art under 35 U.S.C. § 102. *See* 35 U.S.C. § 316(e); *Mahurkar* 79 F.3d at 1576 (holding that the challenger “bore the burden of persuasion . . . on all issues relating to the status of [the asserted reference] as prior art”). However, because Petitioner offered Sunada into evidence, which qualifies on its face as prior art under § 102(e), Patent Owner bears the burden of producing evidence antedating Sunada. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378–80 (Fed. Cir. 2015). While the burden of production is a shifting burden, we note that the burden of persuasion is on Petitioner to ultimately prove “unpatentability by a preponderance of the evidence,” and that this burden never shifts to Patent Owner. *Id.*

1. Actual Reduction to Practice: Claims 1, 12, 15, and 18

To establish an actual reduction to practice, Patent Owner must produce evidence showing that the inventor (1) constructed an embodiment or performed a process that met all the claim limitations, and (2) determined that the invention would work for its intended purpose. *Cooper*, 154 F.3d at

1327. Determining that the invention will work for its intended purpose may require testing, depending on the character of the invention and the problem it solves. *Id.* When testing is necessary, the embodiment relied on as evidence of actual reduction to practice must actually work for its intended purpose. *Id.* In addition, the inventor’s testimony must be corroborated by independent evidence. *Id.* at 1330. A rule of reason applies to determine whether the inventor’s testimony has been corroborated. *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed. Cir. 1993). “The rule of reason, however, does not dispense with the requirement for some evidence of independent corroboration.” *Coleman v. Dines*, 754 F.2d 353, 360 (Fed. Cir. 1985). The requirement of “independent” corroboration requires evidence other than the inventor’s testimony. *In re NTP, Inc.*, 654 F.3d 1279, 1291 (Fed. Cir. 2011).

Here, Patent Owner directs our attention to a pre-release version of software called Tivoli Federated Identity Manager, TFIM Version 5.1. PO Resp. 40. According to Patent Owner, TFIM Version 5.1 “included the functionality of the challenged claims—including code for runtime account creation”—that “was tested and confirmed to work in advance of IBM’s limited release of TFIM Version 5.1 to select customers.” *Id.* Patent Owner relies on specific source code (Exs. 2040–2049) and an installation guide (Ex. 2007), both corresponding to TFIM Version 5.1, as well as the declarations of non-inventors Patrick Wardrop (Ex. 2038) and Tim Ledwith (Ex. 2004) regarding the source code and installation guide, as evidence of actual reduction to practice of claims 1, 12, 15, and 18 “before Sunada’s publication date of October 28, 2004.” *Id.* at 41; *see also id.* at 42–64 (claim chart).

Next, we turn to Petitioner’s evidence and arguments that the invention set forth in the challenged claims was not actually reduced to practice before the critical date, as Patent Owner contends. Pet. Reply 9–17. Petitioner points out that the code itself “was written by Gavin Bray, who is not an inventor,” and argues that Patent Owner “has not shown . . . that the inventors communicated the invention to the author of the code,” thereby failing to show that the *inventor* constructed an embodiment or performed a process that met all the claim limitations, as required by the first element of actual reduction to practice. *Id.* at 11–12 (citing Ex. 1017, 55:14–15); *see also* Ex. 1017, 42:10–43:13. According to Petitioner, “[Patent Owner] has not provided any evidence that Mr. Bray wrote the code based on instructions from the inventors or based on any documentation provided to him by the inventors.” Pet. Reply 12.

We find Petitioner’s arguments persuasive for the reasons set forth below. “Inurement involves a claim by an inventor that, as a matter of law, the acts of another person should accrue to the benefit of the inventor.” *Cooper*, 154 F.3d at 1331. To establish inurement, Patent Owner must produce evidence showing that “the other person was working either explicitly or implicitly at the inventor’s request.” *Id.* at 1332. That is, an inventor need not make an express request to benefit from another’s reduction to practice; rather, “inurement exists if the inventor authorizes another to reduce his invention to practice.” *Solvay S.A. v. Honeywell Int’l, Inc.*, 742 F.3d 998, 1006 (Fed. Cir. 2014) (a third party’s reduction to practice inured to the benefit of an inventor where a research agreement between the parties confirms that the inventor authorized the third party to practice the invention and contemplated that the third party would do so).

As discussed above, Gavin Bray, a non-inventor, wrote the source code relied on as evidence of actual reduction to practice. Pet. Reply 12; Ex. 1017, 42:10–43:13, 55:14–15. Patent Owner does not direct us to sufficient evidence, however, showing that Mr. Bray wrote the code at the request of any of the named inventors or with their authorization. We note Patent Owner’s assertion in its Sur-Reply that “IBM’s developers followed the SDD0 and were required to implement and test the functionality that it specified,” where the SDD0 is a TFIM design document created by Heather Hinton, a named inventor. PO Sur-Reply 2; PO Resp. 65; *see also* Tr. 54:3–6 (“IBM’s routine software development practices at the time as described in our sur-reply required the . . . developers to follow and develop and test what’s in the SDD0.”); *id.* at 54:19–55:11 (“as a developer under IBM software development practices at the time [Mr. Bray] would have had to follow what was in the SDD0 as written by Dr. Hinton” and “the circumstances indicate that some kind of request would have had to have been conveyed to him to develop what’s in the SDD0”).

To support this assertion, Patent Owner relies on testimony from Mr. Wardrop’s declaration as well as his deposition. *Id.* (citing Ex. 2038 ¶ 11; Ex. 1017, 63:22–64:4). In his declaration, Mr. Wardrop testified, “In my role on the TFIM team, the SDD0 served as *my* guide for the software *I* was developing.” Ex. 2038 ¶ 11 (emphases added). During his deposition, Mr. Wardrop further testified that “the rule that we had in the software development model that we had at the time was everything that was an SDD0 had to have been tested and developed near to exactly what that specification stated unless they had written or updated the SDD0 before it was approved to change that fact.” Ex. 1017, 63:22–64:4. As Petitioner

points out, however, while this testimony may show that *Mr. Wardrop* used the SDD0 as a guide for developing software, it does not show that *Mr. Bray* did so as well. See Tr. 66:4–6 (“[Mr. Wardrop] testified as to his use of SDD0. He never testified that that SDD0 was also communicated to Mr. Bray who is the actual person that wrote the code.”).

Nor does the testimony show that Mr. Bray was on the TFIM team or even had access to the SDD0. Indeed, Patent Owner acknowledged during oral argument that “[t]here’s no evidence showing a direct communication from an inventor to Gavin Bray.” Tr. 55:5–6. Although such communication is not required to establish inurement, Patent Owner does not proffer sufficient evidence showing any communication, let alone a communication from an inventor, of the SDD0 to Mr. Bray. See *Solvay*, 742 F.3d at 1006 (“an inventor benefited from work performed by a third party with whom he had no direct communication,” where the inventor had “disclosed his invention and offered it to the United States government, which then turned the disclosure over to an employee, who reduced the invention to practice”).

Based on the record before us, we find that Patent Owner does not meet its burden of producing evidence sufficient to show that Mr. Bray’s work on the source code inured to the benefit of the named inventors. It follows that we also find that Patent Owner does not meet its burden of producing evidence sufficient to show that any of the named *inventors* constructed an embodiment or performed a process that met all the claim limitations. See *Cooper*, 154 F.3d at 1327.

Even if we were to accept that Mr. Bray’s work on the source code inured to the benefit of the named inventors, however, we find that Patent

Owner fails to provide sufficient evidence showing that Mr. Bray's code was tested successfully and adequately to show that the code actually worked for its intended purpose, as required by the second element of actual reduction to practice. *See id.* We note Petitioner's argument that Patent Owner "fails to corroborate the testing by anyone who had first-hand knowledge of that alleged testing." Pet. Reply 11. Petitioner explains that "Dr. Hinton, when asked on redirect at her deposition in this proceeding, testified that runtime account provisioning was tested, although on recross she admitted that she had no documentation to corroborate that testing." *Id.* at 13 n.2 (citing Ex. 1018, 109:14–110:4). Petitioner also explains that "Mr. Wardrop testified that he did not write or test the code, nor was he able to find any documentation about the alleged testing." *Id.* at 14 (citing Ex. 1017, 64:16–22, 79:9–23). In addition, Petitioner points out, "Mr. Wardrop was also unable to say under what configuration the alleged testing would have occurred, which is significant because he testified that not all configurations would have involved runtime account creation." *Id.* (citing Ex. 1017, 91:19–92:21).

We agree with Petitioner. In particular, we note the absence from the record of any evidence showing that Mr. Bray's source code actually worked for its intended purpose. The only evidence that Patent Owner relies on to show testing of Mr. Bray's code is the testimony of Dr. Hinton, a named inventor, and Mr. Wardrop, a non-inventor. *See* PO Resp. 40 (citing Ex. 2038 ¶¶ 12–14, 26; Ex. 2061 71:2–72:24). Patent Owner does not direct us to any test documentation corresponding to the code. Indeed, Dr. Hinton testified during her deposition that she has no access to any such documentation. Ex. 1018, 109:18–24 ("Q. You are not aware of any

documentation that reflects that testing of runtime account creation for the PRPQ; correct? A. I don't have access to the test documents. There would have been test cases created. I just don't have them."). Similarly, Mr. Wardrop testified during his deposition that he also has no access to any test documentation corresponding to Mr. Bray's source code, and that he was not involved with the testing. Ex. 1017, 64:16–22 ("Q. Is there any documentation of that testing? A. I couldn't find any, . . . but I know there was at the time, but it's so long ago . . . because I'm not a tester, so I don't know where they actually kept all those records."); *id.* at 79:18–23 ("Q. . . . So the Exhibits 2040 to 2049 that you said wouldn't have been included in the release but that would have been in the build, would you have been involved in testing with those? A. I was not part of the testing."). In *Woodland Trust v. Flowertree Nursery, Inc.*, 148 F.3d 1368, 1373 (Fed. Cir. 1998), the Federal Circuit found significant "the absence of any physical record to support the oral evidence," despite "the ubiquitous paper trail of virtually all commercial activity" that normally exists "in modern times."

Based on the record before us, we find that Patent Owner fails to carry its burden of producing evidence sufficient to show that Mr. Bray's code was tested successfully to show that the claimed invention would work for its intended purpose.

2. Reasonable Diligence: Claims 3 and 14

To satisfy the reasonable diligence requirement, "the work relied on must ordinarily be directly related to reduction to practice of the invention." *Naber v. Cricchi*, 567 F.2d 382, 385 (CCPA 1977). The work done directed to the *generic* invention cannot be relied on as evidence of diligence for the

specific claimed invention. *In re Nelson*, 420 F.2d 1079, 1081 (CCPA 1970) (“[W]e must consider the evidence only as it relates to the specific invention claimed.”). A party alleging diligence must provide corroboration with evidence that is specific as to both dates and facts. *Gould v. Schawlow*, 363 F.2d 908, 920 (CCPA 1966).

Here, Patent Owner acknowledges that it must provide evidence showing reasonable diligence from before Sunada’s publication date, October 28, 2004, until its own constructive reduction to practice on April 1, 2005. PO Resp. 72. In that regard, Patent Owner relies on the testimony of inventors Heather Hinton and Shane Weeden as well as the testimony of non-inventors Brian Turner and Patrick Wardrop to show that “the inventors and others at IBM continuously worked on developing TFIM from before the critical period began running to April 1, 2005.” *Id.* at 74 (citing Ex. 2002 ¶¶ 7–16; Ex. 2003 ¶¶ 4–7; Ex. 2005 ¶¶ 4–5; Ex. 2038 ¶¶ 4–5). To corroborate their testimony, Patent Owner directs us to various test documentation corresponding to TFIM. *Id.* at 74–75 (citing Exs. 2011, 2018, 2022–2027, 2029–2034). As to claims 3 and 14 in particular, Patent Owner explains that “actually reducing [c]laims 3 and 14 to practice would have required adding functionality to the version of TFIM that implemented [c]laims 1, 12, 15, and 18,” which, in turn, “required testing TFIM as a whole.” *Id.* at 76. Patent Owner further explains that, “[w]hen functionality is added to one component [of TFIM], that component must be tested in a full model build with other components to ensure that the new functionality added to that component does not break a different component.” *Id.* at 76–77. According to Patent Owner, “all of IBM’s testing from October 15,

2004 to March 31, 2005 would have been reasonably necessary for actually reducing [c]laims 3 and 14 to practice.” *Id.* at 77–78.

Having considered the arguments and evidence of record, we disagree with Patent Owner. That the tests would have been necessary to add functionality to TFIM does not alone show reasonable diligence. *See Naber*, 567 F.2d at 385–86. In *Naber*, the court found that the work relied on as evidence of reasonable diligence did not satisfy the requirement of reasonable diligence, explaining that such work “was generally applicable to all MNOS devices, not merely the [claimed] ‘drain-source protected’ device.” *Id.* at 385. Similarly, the necessity of the TFIM tests here was generally applicable to all functionality to be added to TFIM, not just the functionality of claims 3 and 14.

As discussed above, Patent Owner must provide evidence showing that the TFIM tests were directly related to reducing to practice the elements of claims 3 and 14 in order to support a finding of reasonable diligence. *See id.* In that regard, as Petitioner points out, “[Patent Owner] has provided no evidence that IBM was diligently working on the claimed features of claims 3 or 14 during the critical period.” Pet. Reply 19. Patent Owner does not explain how the TFIM tests were *directly related* to reducing to practice the elements of claims 3 and 14. For example, Patent Owner asserts that adding the functionality of claims 3 and 14 to TFIM “would have required testing TFIM to ensure its continued ability to support the single-sign-on and federated computing standards that TFIM needed to support,” but, as Petitioner notes, Patent Owner does not even “show that the functionality recited in claims 3 and 14 *was ever added to any TFIM component.*” PO Resp. 78; Pet. Reply 20. And, if that functionality was added to any TFIM

component, Patent Owner does not indicate when it was added or parse out which tests were related to the functionality. The TFIM test documentation is not self-explanatory and does not explain meaningfully which tests were necessary for reducing to practice the elements of claims 3 and 14 in particular. The evidence relied on by Patent Owner is not sufficiently specific as to both dates and facts for the critical period during which diligence is required. *See Gould*, 363 F.2d at 920. Accordingly, we find that the TFIM testing does not satisfy the requirement of reasonable diligence.

Considering the record before us as a whole, we determine that Patent Owner fails to meet its burden of producing evidence sufficient to show an actual reduction to practice of claims 1, 12, 15, and 18, as well as producing evidence demonstrating reasonable diligence to reduce to practice claims 3 and 14 during the critical period. Therefore, we find that Sunada is prior art under § 102(a) against the claims of the '346 patent.

C. Anticipation by Sunada

Petitioner argues that Sunada anticipates claims 1, 3, 12, 14, 15, and 18 of the '346 patent under 35 U.S.C. § 102(a). Pet. 4, 20–35. For the reasons explained below, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that Sunada anticipates these claims.

1. Sunada

Sunada describes a single-sign-on (SSO) system through which a user may be authenticated only once in order to access services from different web applications that require separate authentications. Ex. 1005 ¶ 1. Sunada's system includes a SSO server 1, web applications 2, 3, clients 5, 6,

7, and network 4, which allows the server, web applications, and clients to communicate with each other. *Id.* ¶ 13, Fig. 1. The SSO server 1 authenticates users who log into the system, while the web applications manage user accounts and provide services to registered users. *Id.* ¶¶ 15–16.

If a user logs into the system through the SSO function and subsequently requests access to a service without being a registered user of the web application that provides the service, then the web application creates a registered local account for the user before providing the service to the user. *Id.* ¶ 16. This scenario is shown in Figure 3, which is reproduced below.

[Figure 3]

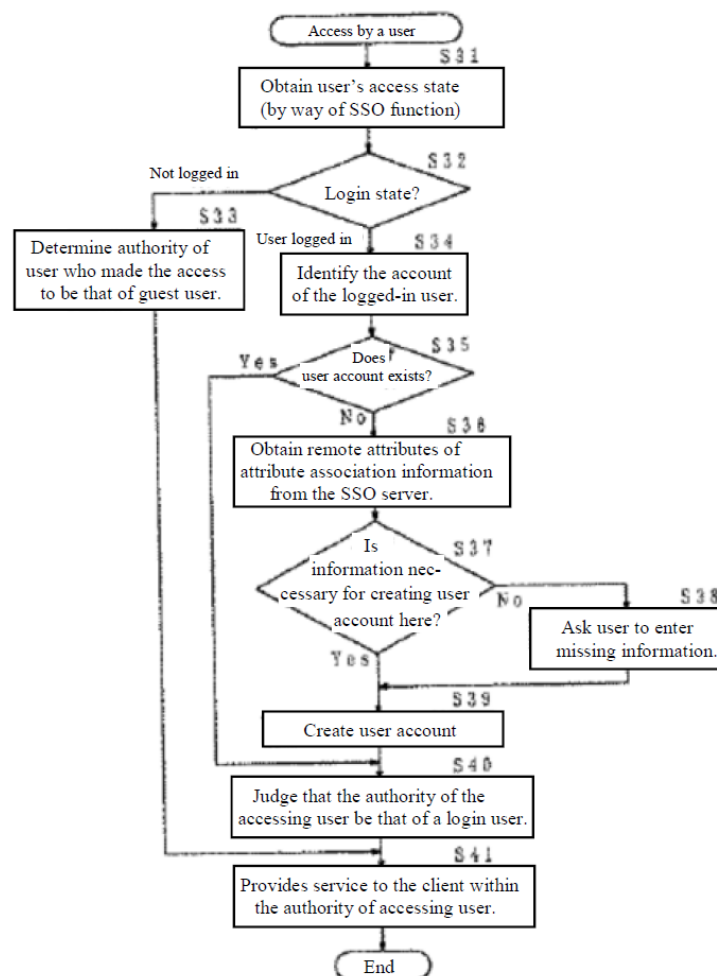


Figure 3 is an operational flowchart for a web application. Ex. 1005 ¶ 26. When a user tries to access a service provided by the web application, the web application determines whether the user has logged into the system. *Id.* ¶ 27, Fig. 3 (S31, S32). Where the user has logged into the system through the SSO function (i.e., the SSO server has authenticated the user), the web application determines whether there is a registered local user account for accessing the web application. *Id.* ¶¶ 28, 30, Fig. 3 (S34, S35). If there is no such account, the web application obtains attribute information from the SSO server. *Id.* ¶ 31, Fig. 3 (S36). Based on this information, the web application creates a registered local user account. *Id.* ¶ 35, Fig. 3 (S37, S39). The web application then provides the requested service to the user. *Id.* ¶ 36, Fig. 3 (S40, 41).

2. Claims 1, 15, and 18

Petitioner explains in its Petition how Sunada discloses each element of independent claims 1, 15, and 18. *See* Pet. 24–29 (discussing claim 1); *id.* at 32–35 (referring to discussion of claim 1 for claims 15 and 18). For example, the claims recite “a first system and a second system interact within a federated computing environment.” For this limitation, Petitioner identifies Sunada’s SSO server as a “first system” and each of Sunada’s web applications⁴ as a “second system.” *See id.* at 21, 24–26 (citing Ex. 1005 ¶¶ 8–9, 16, 18, Fig. 3). We agree with Petitioner and find that Sunada’s SSO server is a “first system” and each of Sunada’s web applications is a “second system.” Below, we further address the parties’ dispute as to whether

⁴ Petitioner refers to Sunada’s web application as an “App Server” throughout the Petition.

Sunada's web application discloses a "second system" and their dispute as to whether Sunada's SSO server and web application interact within a "federated computing environment."

The claims also recite the steps of (1) triggering a single-sign-on operation to access a protected resource at the second system, which requires a user account to complete the operation; (2) receiving from the first system at the second system an identifier associated with the user; and (3) creating a user account at the second system based on the received identifier after triggering the single-sign-on operation but before generating a response for accessing the protected resource. For the "triggering" step, Petitioner directs us to Figure 3 of Sunada, explaining that Sunada's "single-sign-on operation begins by the user attempting to access the [web application]." *Id.* (citing Ex. 1005, Fig. 3). Petitioner also directs us to where Sunada discloses that the web application will not provide its services to the user unless the user has a registered local account. *See id.* (citing Ex. 1005 ¶ 18). We find that Sunada discloses the recited step of "triggering a single-sign-on operation." Namely, we note Sunada's disclosure that "the communications control part [of the web application] accepts an access from a client; examines the user account information . . . ; and judges whether or not to provide the service." Ex. 1005 ¶ 18. We also note Sunada's disclosure that, "where a user has received an authentication at the time of utilizations of another service by way of the SSO function, because it is desirable for the user to be able to utilize the service even though the user is one for whom a user registration has not been conducted, his/her user account information is automatically generated and registered." *Id.*

For the “receiving” step, Petitioner directs us to where Sunada discloses that “the communications part [of the web application] conducts an inquiry of the SSO server 1 and obtains information regarding the user.” *Id.* at 26–27 (citing Ex. 1005 ¶ 19). Sunada further discloses that the web application collects this information “to automatically generate user account information.” Ex. 1005 ¶ 19. We find that the information regarding the user in Sunada corresponds to the recited “identifier associated with the user.”

Lastly, for the “creating” step, Petitioner directs us to where Sunada discloses that the web application “generates the user account information from the obtained information regarding the user” after the user attempts to access services provided by the web application but before the web application provides its services to the user. *See id.* at 27 (citing Ex. 1005 ¶ 19, Fig. 3). We find that generating user account information in Sunada corresponds to the recited step of “creating a user account.”

We note that Patent Owner does not dispute that Sunada discloses most elements recited in claims 1, 15, and 18. *See* Paper 21, 3–4 (“arguments for patentability not raised in the response will be deemed waived”). Patent Owner contends, however, that “Sunada does not disclose either a ‘second system’ or a ‘federated computing environment.’” PO Resp. 22 (discussing claim 1); *id.* at 37 (referring to discussion of claim 1 for claims 15 and 18). We address the disputed limitations in turn.

a. “second system”

For this limitation, Petitioner identifies each of Sunada’s web applications 2 and 3 as a “second system.” Pet. 24 (citing Ex. 1005, Fig. 3); *see also* Ex. 1005 ¶ 18 (cited at Pet. 25).

In response, Patent Owner argues that “[c]laim 1 requires two enterprises: a first enterprise corresponding to the ‘first system’ and a second enterprise corresponding to the ‘second system.’” PO Resp. 22. According to Patent Owner, Sunada is limited to a single enterprise. *Id.* at 23–26. Even if this were true, Patent Owner’s argument does not rebut adequately Petitioner’s arguments and evidence.

Patent Owner’s reasoning that, “[g]iven that a federated computing environment requires multiple interacting enterprises, and given that ‘a first system and a second system interact within a federated computing environment,’ the ‘first system’ and ‘second system’ must be different enterprises” is based on its construction of the term “federated computing environment,” which we did not adopt. PO Resp. 12–13. For example, as Petitioner points out, “[Patent Owner’s] argument for why Sunada does not disclose a ‘second system’ is based entirely on interpreting ‘system’ to mean ‘enterprise.’” Pet. Reply 20. As explained above in the “Claim Construction” section, however, we conclude that the scope of the term “federated computing environment” is not limited to enterprises. Rather, that term encompasses entities, which include enterprises as well as systems. Ex. 1001, 1062–63 (“a federation is a set of distinct entities, such as enterprises”); *id.* at 8:31–32 (“‘entity’ or ‘party’ generally refers to an organization, an individual, or a system”). In view of our construction of the term “federated computing environment,” as discussed *supra*, and having

considered the arguments and evidence developed during trial, we find that Sunada describes the “second system” recited in independent claims 1, 15, and 18. Specifically, we find that each of Sunada’s web applications 2 and 3 discloses a “second system.”

b. “federated computing environment”

The preambles of claims 1, 15, and 18 recite that “a first system and a second system interact within a federated computing environment.” As discussed above in the “Claim Construction” section, we construe a “federated computing environment” to mean “an environment having a loosely coupled affiliation of entities that adhere to certain standards of interoperability; the federation provides a mechanism for trust among those entities with respect to certain computational operations for the users within the federation.” For this limitation, Petitioner identifies Sunada’s SSO server 1 as a “first system” and each of Sunada’s web applications 2 and 3 as a “second system.” Pet. 24–25. Petitioner explains that “the [web applications] ‘participate’ in the SSO and are configured to create a user account for a user that attempts to log on using the SSO server, but does not have an account with the [web application].” *Id.* at 24 (citing Ex. 1005, Fig. 3). Petitioner also explains that “the [web application] and SSO server manage user authentication within that federated system to provide single-sign-on access to protected resources.” *Id.* at 25.

In response, Patent Owner argues that “Sunada cannot disclose a federated computing environment because it only discloses one enterprise,” reiterating its position that “[a] ‘federated computing environment’ requires multiple enterprises.” PO Resp. 26. For the reasons discussed above with

respect to the recited “second system,” Patent Owner’s argument here does not adequately rebut Petitioner’s arguments and evidence. Namely, we conclude that the scope of the term “federated computing environment” is not limited to enterprises.

Patent Owner further argues that Sunada lacks a “mechanism for trust,” noting that Sunada does not describe “any of the hallmarks of a mechanism for trust as described in the ’346 Patent, such as business and liability agreements among enterprises; trust proxies at Sunada’s SSO server and web applications; or a bootstrapping process to establish initial trust between trust proxies at Sunada’s SSO server and web applications.” *Id.* at 26–27. In support of its argument, Patent Owner relies on the declaration testimony of Susan Spielman. *Id.* (citing Ex. 2039 ¶¶ 70–71, 77). Patent Owner also explains that “a mechanism for trust would be unnecessary in Sunada’s single-enterprise single-sign-on” because “[c]omputing components within the same enterprise . . . implicitly trust each other by virtue of sharing a secure internal network.” *Id.* at 27 (citing Ex. 2039 ¶ 78); *see also id.* at 28 (“That Sunada’s web applications and SSO server can share a user’s login status and information about the user is also not sufficient to show that Sunada discloses a ‘federated computing environment.’ Computers within a single enterprise understand and trust each other’s communications because they can communicate over the same standard or protocol on a secure internal network.”).

Petitioner counters, directing us to where the ’346 patent teaches that “a fundamental notion of trust between the federation participants is required for business reasons in order to provide a level of assurance that the assertions (including tokens and attribute information) that are transferred

between the participants are valid.” Pet. Reply 24 (citing Ex. 1001, 20:24–28). Petitioner explains that “Sunada discloses that the SSO Server sends attributes to the Web Application, [and] that the Web application uses those attributes for runtime account creation.” *Id.* (citing Ex. 1005, Fig. 3); *see also* Pet. 26 (“the response from the SSO server received by [a web application] during a single-sign-on operation includes a user identifier such as a user ID or other information that can be used to identify a user”); *id.* at 27 (“the [web application] automatically creates an account for that user using the identifier it received from the SSO server”). According to Petitioner, “there can be no reasonable dispute that the Web Application has some level of assurance that the assertions from the SSO server are valid because the Web Application trusts those assertions enough to create an account.” Pet. Reply 24.

Based on the record before us, we agree with Petitioner. Claims 1, 15, and 18 do not recite any “hallmark[]” of a mechanism for trust. Further, Patent Owner’s own assertion that computer components within a single enterprise implicitly trust each other implies that Sunada discloses a mechanism for trust among those computer components. *See* PO Resp. 27; *see also* Ex. 1001, 19:54–63 (“Within an exemplary federated environment that is able to support the present invention, there are two types of ‘trust domains’ An enterprise trust domain contains those components that are managed by the enterprise; all components within that trust domain may implicitly trust each other.”) (cited at Pet. Reply 24). Moreover, in her declaration, Ms. Spielman directs us to where the ’346 patent teaches that, “[i]f there is no trust relationship, then the service provider cannot depend upon the assertions received from the identity provider; they cannot be used

by the service provider to determine how to interpret any information received from the identity provider.” Ex. 2039 ¶ 70 (citing Ex. 1001, 20:28–32). As discussed above, Sunada’s SSO server sends attributes to a web application, and that web application uses those attributes for runtime account creation. Ex. 1005, Fig. 3. Having considered the arguments and evidence developed during trial, we find that Sunada’s exchange of attributes implies a trust relationship. Specifically, we note the cited teachings in the ’346 patent that all components within an enterprise trust domain may implicitly trust each other, (*see* Ex. 1001, 19:54–63), and that the service provider cannot depend on assertions from the identity provider where there is no trust relationship, (*see id.* at 20:28–32). Accordingly, we find that Sunada discloses a mechanism for trust.

Patent Owner further argues that Sunada does not disclose a “federated computing environment” because, “[w]ithin a single enterprise, some web applications may participate in a single-sign-on, while others may not.” PO Resp. 27 (quoting Ex. 2039 ¶ 79). Although this may be true generally, Patent Owner does not direct us to evidence showing a web application in Sunada specifically that does not participate in a single-sign-on. Indeed, Sunada teaches that both web applications 2 and 3 “have a function by which, in a case where a user who has logged in by way of the SSO function requests to be provided with a service and the user is not registered, the applications automatically create a user account.” Ex. 1005 ¶ 16 (cited at Pet. 25–26); *see also* Pet. 24 (“the [web applications in Sunada] ‘participate’ in the SSO and are configured to create a user account for a user that attempts to log on using the SSO server, but does not have an

account with the [web application]”). We find that each of Sunada’s web applications participates in single-sign-on operations.

Lastly, Patent Owner argues “that Sunada’s web applications and SSO server can share a user’s login status and information about the user is also not sufficient to show that Sunada discloses a ‘federated computing environment.’” PO Resp. 28. According to Patent Owner, computers within a single enterprise trust each other “because they can communicate over the same standard or protocol on a secure internal network,” and “that Sunada’s web application and SSO server purportedly communicate using the same standard or protocols also is not enough to make them a ‘federated computing environment’ because components within a single enterprise can communicate over the same standard or protocol.” *Id.*

Patent Owner’s argument appears to assume that the term “federated computing environment” excludes an environment in which there is just a single enterprise. Under our construction of that term, however, two computer systems (or entities) within a single enterprise could disclose a “federated computing environment.” Moreover, we note that Petitioner does not argue that Sunada’s exchange of user information alone discloses a “federated computing environment,” as Patent Owner suggests. See PO Resp. 28. As discussed above, Petitioner points to additional features in Sunada as supporting the disclosure of a “federated computing environment.” For example, Petitioner explains that the web application in Sunada uses the exchanged information for runtime account creation in order to provide a single-sign-on experience. Pet. 24–25. Petitioner also explains in its Reply that the exchange of user information between Sunada’s SSO server and web application implies a trust relationship

between the two components. Pet. Reply 24. In view of our construction of the term “federated computing environment,” as discussed *supra*, and having considered the arguments and evidence developed during trial, we find that Sunada describes a “federated computing environment.”

For the reasons discussed above, we determine that Petitioner has demonstrated by a preponderance of the evidence that Sunada anticipates claims 1, 15, and 18.

3. Claim 3

Claim 3 depends from claim 1 and additionally recites “sending a message from the second system to the first system to pull authentication information for the user from the first system to the second system in order to trigger the single-sign-on operation for the user at the second system.” For this limitation, Petitioner directs us to where Sunada teaches that “the communications part [of the web application] conducts an inquiry of the SSO server 1 and obtains information regarding the user.” Pet. 30 (citing Ex. 1005 ¶ 19); Ex. 1005 ¶ 19. Petitioner explains that, given this teaching in Sunada, “a POSA would understand that the [web application] sends a message to the SSO server to pull user attribute information about the user.” Pet. 30. Petitioner also explains that the “request for user attributes from the SSO server causes the subsequent account creation and login steps to occur.” *Id.* (citing Ex. 1005, Fig. 3 (elements S40, S41)).

In response, Patent Owner argues that Sunada’s steps of conducting an inquiry of the SSO server and obtaining user information occur “**after** Sunada’s single-sign-on operation is triggered—not **in order to** trigger the single-sign-on operation.” PO Resp. 32 (citing Ex. 2037, 95:15–18, 95:21–

96:16). Patent Owner explains, “[t]hat authentication information must be pulled **in order to** trigger the single-sign-on operation for the user means that authentication information must be pulled before or concurrently with triggering the single-sign-on operation.” *Id.* at 29. In support of its argument, Patent Owner directs us to Figure 3 of Sunada, which is reproduced below. *Id.* at 30.

[Figure 3]

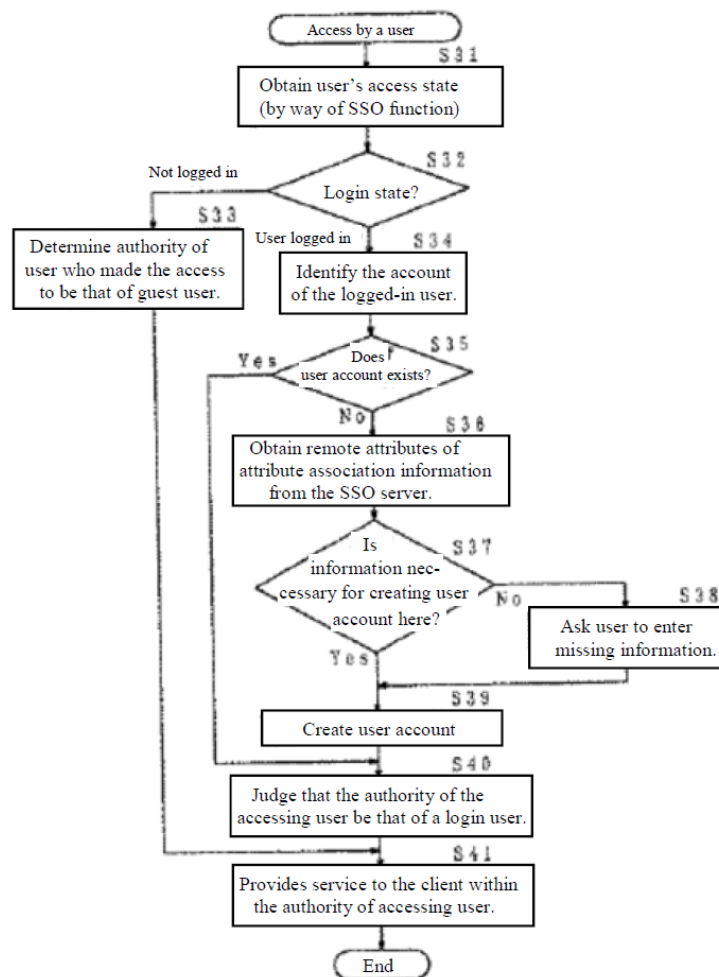


Figure 3 is an operational flowchart for a web application. Ex. 1005 ¶ 26. According to Patent Owner, “Sunada’s single-sign-[on] operation is triggered at S31 of that flow chart, when the user attempts to access a web application.” PO Resp. 30–31. Patent Owner further explains that the web

application conducts the inquiry of the SSO server and obtains user information at S36. *Id.* at 31. Patent Owner points out that “S36 occurs after S31.” *Id.*

Patent Owner’s argument does not rebut adequately Petitioner’s arguments and evidence. We agree with Petitioner’s argument that the user’s access instead occurs just before S31, when the web application obtains the user’s access state, thereby triggering a single-sign-on operation. Pet. Reply 25 (citing Ex. 2037, 95:21–96:16). In particular, we are persuaded by Petitioner’s argument that Sunada’s web application conducts an inquiry of the SSO server and obtains user information not only at S36 but also at S31, which is when the user’s access state is obtained. Indeed, Sunada teaches that “the access state can be obtained from the SSO server 1” and that “the web application 2 conducts an inquiry for the access state.” Ex. 1005 ¶¶ 27–28. In response to the inquiry, “the server is to send a return saying that the access state is that of being logged in” or that “the access state is the not-yet-logged-in state.” *Id.* ¶ 28. Based on the record before us, we find that Sunada discloses the limitation recited in claim 3.

In view of the foregoing, we determine that Petitioner has demonstrated by a preponderance of the evidence that Sunada anticipates claim 3.

4. Claim 12

Claim 12 depends from claim 1 and additionally recites that “the first system supports an identity provider and the second system supports a service provider.” For this limitation, Petitioner argues that Sunada’s SSO server is an “identity provider” because “information retrieved by the [web

application] from the SSO server as part of the single-sign-on includes user ID, name, and address.” Pet. 30–31 (citing Ex. 1005, Fig. 2). Petitioner also argues that each of Sunada’s web applications is a “service provider” because “[web applications] provide access to services.” *Id.* at 31 (citing Ex. 1005 ¶ 36).

In response, Patent Owner argues that Sunada does not disclose an “identity provider” or a “service provider” because Sunada does not disclose a “federated computing environment.” PO Resp. 32–33. As discussed above with respect to claims 1, 15, and 18, however, we find that Sunada discloses a “federated computing environment.”

Based on the record before us, we find that Sunada’s SSO server and web application disclose an “identity provider” and a “service provider,” respectively. Accordingly, we determine that Petitioner has demonstrated by a preponderance of the evidence that Sunada anticipates claim 12.

5. Claim 14

Claim 14 depends from claim 1 and additionally recites “in response to a determination at the second system that the second system does not have sufficient user attribute information to complete creation of a user account for the user at the second system, sending a request message to a fourth system to retrieve user attribute information.” For this limitation, Petitioner identifies the user’s computer in Sunada as a “fourth system.” Pet. 31. Noting that “Sunada discloses that user attribute information may be obtained from sources other than the SSO server,” Petitioner explains that “in step S37 of Figure 3, Sunada discloses that if [a web application] determines that it does not have sufficient user attribute information to

complete the account creation process, it will send the user a request for additional information.” Pet. 31 (citing Ex. 1005 ¶¶ 22, 34, Fig. 3 (S38)).

In response, Patent Owner refers to its arguments with respect to claim 1 and argues that Sunada does not anticipate claim 14 because “Sunada discloses neither a ‘second system’ nor a ‘federated computing environment.’” PO Resp. 33. For the reasons discussed above, we disagree with Patent Owner and remain persuaded that Sunada discloses both a “second system” and a “federated computing environment.”

Patent Owner further argues that, “as Sunada discloses only one enterprise, Sunada cannot disclose a ‘fourth system.’” *Id.* This argument assumes that a “federated computing environment” requires multiple enterprises. As discussed above, we do not construe that term to require multiple enterprises, let alone a single enterprise. Accordingly, based on the record before us, we find that the user’s computer in Sunada discloses a “fourth system.”

We note Patent Owner’s argument that “the broadest reasonable interpretation of ‘fourth system’ is ‘a system other than the first system, second system, or client system.’” PO Resp. 34. In support of this argument, Patent Owner explains that, “when something is to be obtained from the user, the claims specifically say so, as in [c]laim 13,” which recites “prompting the user by the service provider to provide or to select an identifier for the identity provider.” *Id.* at 20–21. Patent Owner further explains that “the claims skip from a ‘first system’ and ‘second system’ to a fourth system” because “[t]he ‘client system’ is the ‘missing third system.’” *Id.* at 21. In addition, Patent Owner points out that “[t]he ’346 Patent discusses that a service provider (second system) can obtain user attributes

from an **attribute information provider** rather than an identity provider (first system) or user's computer." *Id.* Patent Owner additionally points out that, by contrast, the '346 patent also "describes prompting a **user** to select or provide an identifier." *Id.*

Based on the record before us, we remain persuaded that the user's computer in Sunada discloses a "fourth system," as argued by Petitioner. For instance, that claim 13 and the specification of the '346 patent recite a "user" instead of a "fourth system" in the context of providing or selecting an identifier for the identity provider does not mean that the recited "fourth system" cannot encompass a "user" in the context of retrieving user attribute information. As Patent Owner acknowledges, the '346 patent teaches that attribute information can be obtained from the identity provider, the user, or the attribute information provider. *See id.* at 21. In fact, the '346 patent teaches in particular that "a service provider may send a request for user attributes to an identity provider, which subsequently enlists assistance by sending a request to an attribute information provider, thereby acting as an intermediate trusted agent on behalf of the service provider." Ex. 1001, 38:29–33. This scenario does not preclude further sending a request for user attributes to the user, where the service provider has determined insufficient user attribute information. *See id.* at 35:9–14 ("[w]ith reference now to FIGS. 9C–9E, dataflow diagrams depict . . . alternative methods for obtaining user attributes by the federated service provider"); *id.* at 36:42–45 ("Referring now to FIG. 9D, the service provider responds to its determination of its lack of user attribute information by sending an HTTP redirect message . . . to the client . . ."). Moreover, as to Patent Owner's theory that "[t]he 'client system' is the 'missing third system'" (*see* PO

Resp. 21), we note that the claims do not recite a “client system” or a “missing third system.”

Patent Owner further argues that “Sunada obtains information from ‘a server and the like other than the SSO server 1’ **before** Sunada purportedly ‘[determines] that the second system does not have sufficient user attribute information to complete creation of a user account for the user at the second system’ at S37, not **in response to** any such determination.” *Id.* 36–37. Patent Owner explains that claim 14 requires that “the request message must be sent to the fourth system **after** the ‘determination at the second system.’” *Id.* at 34. In support of its argument, Patent Owner points out Sunada’s step of obtaining information from “sources other than the SSO server” occurs at S36 of Figure 3 (which is reproduced above) and that Sunada’s step of determining that the second system does not have sufficient user attribute information occurs at S37 of Figure 3. *Id.* at 35–36; *see also* Ex. 1001, Fig. 3. Patent Owner further points out that “S36 occurs before S37.” PO Resp. 36.

Having considered the arguments and evidence developed during trial, we are persuaded that Sunada discloses sending a request message to a fourth system to retrieve user attribute information *in response* to a determination at the second system that the second system does not have sufficient user attribute information to complete creation of a user account for the user at the second system, as required by claim 14. As discussed above, Petitioner identifies the user’s computer in Sunada as a “fourth system.” Pet. 31. We agree with Patent Owner that Sunada’s step of determining that the second system does not have sufficient user attribute information occurs at S37, but, based on Petitioner’s arguments in its

Petition, we find that the step of obtaining attribute information from the user's computer occurs at S38, not S36. *See id.*; Ex. 1005, Fig. 3. Figure 3 of Sunada shows that the step at S37 occurs before the step at S38.

Ex. 1005, Fig. 3; *see also id.* ¶ 19 (“as for information which is missing for generation of the user account information, the communications part [of the web application] makes an inquiry of the user and receives his/her entries.”).

Based on further review of the record and for the reasons discussed above, we determine that Petitioner has demonstrated by a preponderance of the evidence that Sunada anticipates claim 14.

D. Petitioner's Motion to Exclude

Petitioner moves to exclude paragraphs 26–27 from Exhibit 2038. Paper 51, 2. Patent Owner opposes the motion. Paper 54. This Decision does not rely on any of the content that Petitioner seeks to exclude. Accordingly, we *dismiss as moot* Petitioner's Motion to Exclude.

E. Patent Owner's Motions to Seal

Patent Owner filed a Second Motion to Seal (Paper 34), seeking to seal the entirety of Exhibits 2040–2049 as well as portions of Patent Owner's Response (Paper 32) and Exhibits 2038, 2039, and 2061. Patent Owner also filed a Third Motion to Seal (Paper 46), seeking to seal the entirety of Exhibits 1014 and 1015 as well as portions of Petitioner's Reply (Paper 44) and Exhibits 1016–1018. Lastly, Patent Owner filed a Fourth Motion to Seal (Paper 49), seeking to seal a portion of Patent Owner's Sur-Reply (Paper 47). The parties have filed corresponding public redacted versions of the documents that Patent Owner seeks to seal in part.

There is a strong public policy in favor of making information filed in an *inter partes* review open to the public, especially because the proceeding determines the patentability of claims in an issued patent and, therefore, affects the rights of the public. See *Garmin Int’l, Inc. v. Cuozzo Speed Techs. LLC*, Case IPR2012-00001, slip op. at 1–2 (PTAB Mar. 14, 2013) (Paper 34). Under 35 U.S.C. § 316(a)(1) and 37 C.F.R. § 42.14, the default rule is that all papers filed in an *inter partes* review are open and available for access by the public; however, a party may file a concurrent motion to seal and the information at issue is sealed pending the outcome of the motion. It is only “confidential information” that is protected from disclosure. 35 U.S.C. § 316(a)(7); see Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,760 (Aug. 14, 2012). The standard for granting a motion to seal is “good cause.” 37 C.F.R. § 42.54(a). The party moving to seal bears the burden of proof in showing entitlement to the requested relief and must explain why the information sought to be sealed constitutes confidential information. 37 C.F.R. § 42.20(c). As set forth in the Trial Practice Guide (77 Fed. Reg. at 48,761), there is an expectation that information will be made public if identified in this Final Written Decision.

We address each of Patent Owner’s motions to seal in turn.

1. Patent Owner’s Second Motion to Seal (Paper 34)

Patent Owner moves to seal Exhibits 2040–2049 in their entirety. Paper 34, 1. Patent Owner further moves to seal in part Exhibits 2038, 2039, and 2061, as well as Patent Owner’s Response (Paper 32). *Id.* Patent Owner has provided public redacted versions of each document for which partial sealing is sought.

Exhibits 2040–2049 contain source code for Patent Owner’s TFIM Version 5.1. *Id.* at 3. Exhibits 2038 and 2039 are Patrick Wardrop’s declaration and Susan Spielman’s declaration, respectively. Exhibit 2061 is the transcript of Heather Hinton’s deposition taken on October 7, 2016. Patent Owner’s counsel states that Patent Owner has not previously publicly disclosed the information it seeks to seal. *Id.* at 3 (discussing Exhibits 2040–2049); *id.* at 6 (discussing Exhibit 2061); *see also id.* at 6 (“[Patent Owner] has redacted portions of Exhibits 2038 and 2039 that refer to or incorporate portions of Exhibits 2040–2049.”); *id.* at 8 (“[Patent Owner] has redacted portions of its Patent Owner Response that refer to or incorporate portions of either Exhibits 2040–2049 or the redacted portions of Mr. Wardrop’s and Ms. Spielman’s declarations.”). Patent Owner’s counsel also certifies that the parties have conferred regarding Patent Owner’s motion to seal and that Petitioner does not oppose the motion. *Id.* at 8.

We have considered Patent Owner’s arguments to seal the above-identified documents, the Protective Order (attached to Paper 13) entered in this proceeding, and the information sought to be redacted by Patent Owner. We determine that Patent Owner has demonstrated “good cause” for sealing the documents identified above pursuant to the protective order entered in this proceeding. *See* 37 C.F.R. § 42.54. Accordingly, we *grant* Patent Owner’s Second Motion to Seal.

2. Patent Owner’s Third Motion to Seal (Paper 46)

Patent Owner seeks to seal the entirety of Exhibits 1014 and 1015 as well as portions of Petitioner’s Reply (Paper 44) and Exhibits 1016–1018.

Paper 46, 1. Petitioner has provided public redacted versions of each document for which Patent Owner seeks partial sealing.

Exhibit 1014 contains source code and software design notes for TFIM. *Id.* at 3. Exhibit 1015 contains marketing strategy and software design notes for TFIM. *Id.* at 5. Exhibits 1016 and 1017 are the transcripts of Ms. Spielman’s deposition taken on January 25, 2017, and Mr. Wardrop’s deposition taken on February 9, 2017, respectively. *Id.* at 7. Exhibit 1018 is the transcript of Dr. Hinton’s deposition taken on February 16, 2017. *Id.* at 9. Patent Owner’s counsel states that Patent Owner has not previously publicly disclosed the information it seeks to seal. *Id.* at 3 (discussing Exhibit 1014); 5–6 (discussing Exhibit 1015); *see also id.* at 7 (“[Patent Owner] seeks to seal the portions of Ms. Spielman’s and Mr. Wardrop’s deposition transcripts in which they discuss Exhibits 2040–2049, the TFIM testing code and source code that were the subject of IBM’s Second Motion To Seal.”); *id.* at 9–10 (“[Patent Owner] seeks to seal the portions of Dr. Hinton’s deposition transcript in which Dr. Hinton discusses . . . Exhibit 1014 . . . ; Exhibit 1015 . . . ; Portions of Ex. 2006 that [Patent Owner] previously moved to seal . . . ; [and] Other confidential information, including discussions with customers under an obligation of confidentiality”); *id.* at 12 (“The portion of Petitioner’s Reply to be redacted cites and discusses [Patent Owner] confidential information contained in Exhibit 1014 and sealed portions of Dr. Hinton’s deposition transcript.”). Patent Owner’s counsel also certifies that the parties have conferred regarding Patent Owner’s motion to seal and that Petitioner does not oppose the motion. *Id.* at 13.

We have considered Petitioner’s arguments to seal the above-identified documents, the Protective Order (attached to Paper 13) entered in this proceeding, and the information sought to be redacted by Patent Owner. With the exception of Petitioner’s Reply (Paper 44), we determine that Patent Owner has demonstrated “good cause” for sealing the documents identified above pursuant to the protective order entered in this proceeding. *See* 37 C.F.R. § 42.54. Accordingly, we *grant* Patent Owner’s Third Motion to Seal as to Exhibits 1014–1018.

Regarding Petitioner’s Reply, we note that the redaction on page 16 relates to information included on page 12 of Exhibit 2007, which is a public document. *See* Paper 23, 10 (Patent Owner asserting that it “no longer seeks to seal Exhibit[] 2007”); Paper 37, 6 (order unsealing Exhibit 2007). Thus, the parties are ordered to file within seven business days of the date of this Decision an amended public redacted version of Petitioner’s Reply that removes all redactions relating to unsealed material, but retains the redactions relating to sealed material.

In the meantime, Petitioner’s Reply will remain provisionally sealed. After we receive the amended public redacted version of Petitioner’s Reply, we will determine if the redactions are consistent with the guidance provided above and, thereafter, issue a subsequent decision on Patent Owner’s Third Motion to Seal as to Petitioner’s Reply.

3. Patent Owner’s Fourth Motion to Seal (Paper 49)

Patent Owner seeks to seal in part its Sur-Reply (Paper 47). Paper 49, 1. In particular, Patent Owner seeks to seal a portion of the Sur-Reply that includes an excerpt from Exhibit 1014, which contains software design notes

for TFIM and is a subject of Patent Owner's Third Motion to Seal. *Id.* Patent Owner has provided a public redacted version of the Sur-Reply.

Patent Owner's counsel states that Patent Owner has not previously publicly disclosed the information it seeks to seal. *Id.* at 3. Patent Owner's counsel also certifies that the parties have conferred regarding Patent Owner's motion to seal and that Petitioner does not oppose the motion. *Id.* at 5.

We have considered Petitioner's arguments to seal its Sur-Reply, the Protective Order (attached to Paper 13) entered in this proceeding, and the information sought to be redacted by Patent Owner. We determine that Patent Owner has demonstrated "good cause" for sealing the Sur-Reply pursuant to the protective order entered in this proceeding. *See* 37 C.F.R. § 42.54. Accordingly, we *grant* Patent Owner's Fourth Motion to Seal.

As to all Patent Owner's motions to seal in this proceeding, because there is an expectation that information will be made public where the information is identified in a final written decision, confidential information that is subject to a protective order ordinarily would become public 45 days after final judgment in a trial, unless a motion to expunge is granted. 37 C.F.R. § 42.56; Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,761. A party who is dissatisfied with this Final Written Decision, however, may appeal this Decision pursuant to 35 U.S.C. § 141(c), and has 63 days after the date of this Decision to file a notice of appeal. 37 C.F.R. § 90.3(a). In view of the above, the time period for filing a motion to expunge is extended to 90 days after final judgment in this trial. *See* 37 C.F.R. § 42.5(b). If an appeal is taken, this time period shall be further extended to 45 days after the mandate has issued. *See id.* During this period, all information sealed in

this case shall remain under seal. The record for the instant proceeding will be preserved in its entirety, and the confidential documents will not be expunged or made public, pending possible appeal.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 3, 12, 14, 15, and 18 of the '346 patent are unpatentable under 35 U.S.C. § 102 as anticipated by Sunada.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 3, 12, 14, 15, and 18 of the '346 patent are held to be *unpatentable*;

FURTHER ORDERED that Petitioner's Motion to Exclude (Paper 51) is *dismissed as moot*;

FURTHER ORDERED that Patent Owner's Second Motion to Seal (Paper 34) is *granted*;

FURTHER ORDERED that Patent Owner's Third Motion to Seal is *granted-in-part*. Patent Owner's Third Motion to Seal is *granted* with respect to Exhibits 1014–1018, and will be held in abeyance with respect to Petitioner's Reply (Paper 44). The public redacted version of Petitioner's Reply (Paper 45) shall be expunged. The parties are authorized to file within seven business days of the date of this Decision an amended public redacted version of Petitioner's Reply that removes all redactions relating to

information that is public, but retains all redactions relating to sealed information. No other changes to Petitioner's Reply are authorized;

FURTHER ORDERED that Patent Owner's Fourth Motion to Seal is *granted*;

FURTHER ORDERED that the information sealed in this Decision and in our decision (*see* Paper 37) on Patent Owner's Renewed Motion to Seal remain under seal, and the record preserved, until 90 days after final judgment in this trial or, if an appeal is taken, until 45 days after the mandate has issued; 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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