

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ACTIVISION BLIZZARD, INC.,
ELECTRONIC ARTS INC.,
TAKE-TWO INTERACTIVE SOFTWARE, INC.,
2K SPORTS, INC., and
ROCKSTAR GAMES, INC.,
Petitioner,

v.

ACCELERATION BAY, LLC,
Patent Owner.

Case IPR2016-00724
Patent 6,920,497 B1

Before SALLY C. MEDLEY, LYNNE E. PETTIGREW, and
WILLIAM M. FINK, *Administrative Patent Judges*.

MEDLEY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION¹
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

¹ A sealed “Parties and Board Only” version of this Decision was entered on August 28, 2017. Pursuant to notice from the parties that this Decision may be made publicly available without any redactions, the Decision is reissued as a public version.

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Activision Blizzard, Inc., Electronic Arts Inc., Take-Two Interactive Software, Inc., 2K Sports, Inc., Rockstar Games, Inc., and Bungie, Inc. (collectively, “Petitioner”) challenge claims 1, 3–5, 7 and 8 (“the challenged claims”) of U.S. Patent No. 6,920,497 B1 (Ex. 1001, “the ’497 patent”), owned by Acceleration Bay, LLC (“Patent Owner”). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that the challenged claims are unpatentable.

A. Procedural History

Activision Blizzard, Inc., Electronic Arts Inc., Take-Two Interactive Software, Inc., 2K Sports, Inc., and Rockstar Games, Inc., filed a Petition for *inter partes* review of claims 1, 3–5, 7–9, and 16 of the ’497 patent. Paper 2 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 9 (“Prelim. Resp.”). On September 7, 2016, we instituted an *inter partes* review of claims 1, 3–5, 7 and 8 of the ’497 patent on the following grounds:

(1) claims 1 and 7 as obvious under 35 U.S.C. § 103(a)² over Smart Clients,³ with or without Vahdat⁴; (2) claims 3–5 as obvious under 35 U.S.C. § 103(a) over Smart Clients, ONE-IP,⁵ and Karger,⁶ with or without Vahdat; and (3) claim 8 as obvious under 35 U.S.C. § 103(a) over Smart Clients and Naugle,⁷ with or without Vahdat. Paper 11, 27 (“Dec.”).

Thereafter, Patent Owner filed a Patent Owner Response (“PO Resp.”). Paper 24 (confidential), Paper 25 (redacted). Petitioner filed a Reply to the Patent Owner Response (“Pet. Reply”). Paper 36 (redacted), Paper 40 (corrected confidential).

Patent Owner filed a Motion to Exclude, Paper 43 (“PO Mot. Exc.”), Petitioner filed an Opposition, Paper 44 (“Pet. Opp. Mot. Exc.”), and Patent Owner filed a Reply, Paper 45.

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the ’497 patent has an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of 35 U.S.C. §§ 102 and 103.

³ Chad Yoshikawa et al., “Using Smart Clients to Build Scalable Services,” Proceedings of the 1997 USENIX Technical Conference (Jan. 1997) (Ex. 1005) (“Smart Clients”).

⁴ Amin M. Vahdat et al., “WebFS: A Global Cache Coherent File System,” January 29, 1999 (Ex. 1007) (“Vahdat”).

⁵ Om P. Damani, “ONE-IP: techniques for hosing a service on a cluster of machines,” COMPUTER NETWORKS AND ISDN SYSTEMS, No. 29, pp. 1019-27 (1997) (Ex. 1009) (“ONE-IP”).

⁶ David Karger et al., “Web Caching with Consistent Hashing,” WWW ’99 Proceedings of the Eighth Int’l Conf. on World Wide Web (May 1999) (Ex. 1012) (“Karger”).

⁷ Matthew Naugle, NETWORK PROTOCOL HANDBOOK (McGraw-Hill 1994) (Ex. 1008) (“Naugle”).

An oral hearing was held on May 17, 2017. A transcript of the hearing has been entered into the record. Paper 48 (“Tr.”).

B. Related Matters

Petitioner identifies the following pending judicial matters as relating to the ’497 patent: *Activision Blizzard, Inc. v. Acceleration Bay LLC*, Case No. 3:16-cv-03375 (N.D. Cal., filed June 16, 2016); *Electronic Arts Inc. v. Acceleration Bay LLC*, Case No. 3:16-cv-03378 (N. D. Cal., filed June 16, 2016); *Take-Two Interactive Software, Inc. v. Acceleration Bay LLC*, Case No. 3:16-cv-03377 (N.D. Cal., filed June 16, 2016); *Acceleration Bay LLC v. Activision Blizzard, Inc.*, Case No. 1:16-cv-00453 (D. Del., filed June 17, 2016); *Acceleration Bay LLC v. Electronic Arts Inc.*, Case No. 1:16-cv-00454 (D. Del., filed June 17, 2016); and *Acceleration Bay LLC v. Take-Two Interactive Software, Inc.*, Case No. 1:16-cv-00455 (D. Del., filed June 17, 2016). Paper 10, 2–3.

Petitioner and Patent Owner also identify numerous other petitions for *inter partes* review filed by Petitioner challenging claims of patents related to the ’497 patent:

IPR2015-01951 IPR2015-01953	U.S. Patent No. 6,714,966 B1
IPR2015-01964 IPR2015-01996 IPR2016-00727	U.S. Patent No. 6,829,634 B1
IPR2015-01970 IPR2015-01972	U.S. Patent No. 6,701,344 B1
IPR2016-00747	U.S. Patent No. 6,732,147 B1
IPR2016-00726	U.S. Patent No. 6,910,069 B1

Pet. 2–3; Paper 8, 1. We issued final written decisions in IPR2015-01951, IPR2015-01953, IPR2015-01964, IPR2015-01996, IPR2015-01970, and

IPR2015-01972 in March 2017. We denied institution of *inter partes* review in IPR2016-00726 and IPR2016-00727 in September 2016.

C. The '497 Patent

The '497 patent relates to a method of connecting a seeking computer through a portal computer to a network. Ex. 1001, Abstract. The seeking computer dials the communications ports of a portal computer until it locates a call-in port, where a port ordering algorithm is used to identify the call-in port. *Id.* Communications ports selected by the port ordering algorithm may be re-ordered. *Id.*

In one embodiment described in the '497 patent, a seeking computer may call each port of a plurality of portal computers in numerical order; in another embodiment “[t]he seeking computer could identify the call-in port number of a portal computer by successively dialing each port in port number order,” where that order is selected using a “hashing algorithm.” Ex. 1001, 6:57–62; *see also id.* at 11:60–65. The use of a hashing algorithm allows for the random distribution of ports and only selects the port number once. *Id.* at 11:65–12:1. According to another embodiment, the seeking computer may dial the same port number on different portal computers, contacting different ports on different portal computers, until a call-in port is found. After all portal computers are tried at one port number, the seeking computer may try to call the portal computers on the next port number until either a connection is established or a maximum search depth is attained. *See id.* at 12:41–46, 18:59–19:34, Fig. 9.

D. Illustrative Claim

Among the claims of the '497 patent at issue in this proceeding, claim 1 is the sole independent claim. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method in a computer for locating a computer through which to connect to a network, the method comprising:

providing an identification of a portal computer or a plurality of portal computers, the portal computer or the plurality of portal computers having a communications port or communications ports with a call-in port being enabled for communications when the portal computer or the plurality of portal computers is in a state to coordinate the connection of a seeking computer to the network, wherein the call-in port is a type of communications port;

selecting the communications port or communications ports of the portal computer or the plurality of portal computers and attempting to communicate with the selected communications port or communications ports until communications with the call-in port is successful, wherein a port ordering algorithm is used to identify the call-in port, and wherein the communications ports selected by the port ordering algorithm may be re-ordered; and

using the call-in port to request that the portal computer or the plurality of portal computers coordinate the connecting of the seeking computer to the network.

Id. at 29:24–48.

II. DISCUSSION

A. Principles of Law

To prevail in its challenge to Patent Owner's claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). A claim is

unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The level of ordinary skill in the art may be reflected by the prior art of record. See *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

B. Level of Ordinary Skill in the Art

Citing its declarant, Dr. Karger, Petitioner contends that a person having ordinary skill in the art at the time of the invention would have had a minimum of (1) a bachelor's degree in computer science, computer engineering, applied mathematics, or a related field of study; and (2) four or more years of industry experience relating to networking protocols or network topologies. Pet. 16; Ex. 1003 ¶ 17. Petitioner also contends that additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education. Pet. 16–17; Ex. 1003 ¶ 17.

Patent Owner's expert, Dr. Goodrich, opines that a person of ordinary skill in the art would have had (1) a bachelor's degree in computer science or related field, and (2) two or more years of industry experience and/or an advanced degree in computer science or related field. Ex. 2003 ¶ 24.

Dr. Goodrich also states that his opinions would be the same if rendered from the perspective of a person of ordinary skill in the art as set out by Dr. Karger. *Id.* ¶ 27.

The levels of ordinary skill proposed by the parties do not differ significantly, as suggested by Dr. Goodrich's testimony that his opinions would be the same under either party's proposal. *See id.* Both parties' proposed descriptions require at least an undergraduate degree in computer science or related technical field, and both require at least two years of industry experience (although Petitioner proposes four years), but both agree that an advanced degree could substitute for work experience. For purposes of this Decision, we adopt Petitioner's proposed definition as more representative, but note that our analysis would be the same under either definition.

C. Claim Interpretation

In an *inter partes* review, claim terms in an unexpired patent are given their “broadest reasonable construction in light of the specification of the patent in which they appear.” 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S.Ct. 2131, 2144–46 (2016). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Only terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). It is improper to add an extraneous limitation into a claim, i.e., one that is added wholly apart from any need for the addition to accord meaning to a claim term. *See, e.g., Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 950 (Fed. Cir. 1993); *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988).

1. “port ordering algorithm”

Claim 1 recites “a port ordering algorithm.” Patent Owner argues that a “port ordering algorithm” means “an algorithm that provides a sequence of port numbers.” PO Resp. 12. Implicit in Patent Owner’s proposed construction is that the sequence of port numbers be different and unknown. *See, e.g.*, PO Resp. 27–28 (arguing that Smart Clients does not contemplate

“the dynamic searching of ports for connecting to a network” because “in Smart Clients, the ports are known”); *id.* at 40 (“[w]here the port is *known*, there is no need for a port ordering algorithm used to find the call-in port”); *id.* at 41 (“attempting to communicate with different ***communications ports*** until the call-in port is found”). Also implicit in Patent Owner’s proposed construction is that the port ordering algorithm order only port numbers and nothing else. *Id.* at 13, 42; Tr. 24:1–8, 25:20–24. Both parties agree that a “port” is associated with, or is identified by, a port number. Petitioner counters, however, that “a port ordering algorithm” means “an algorithm that orders ports” and that reordering different ports with the same number on multiple portal computers is within the scope of the claims. Pet. Reply 1, 3. Petitioner further argues that as long as the port numbers are ordered, it is irrelevant that the ordering also provides the associated URL of ordered servers. *See, e.g.*, Pet. 30–31; Pet. Reply 20; Tr. 6.

It is necessary for us to construe the phrase because there is a dispute about whether the prior art (Smart Clients) describes “a port ordering algorithm.” In particular, Patent Owner does not dispute that Smart Clients describes an algorithm that orders sockets (URL plus port number), but disagrees that Smart Clients’ algorithm results in ordering different, unknown port numbers, or exclusively orders port numbers. *See, e.g.*, PO Resp. 41–42. For the reasons that follow, we agree with Petitioner that “a port ordering algorithm” is an algorithm that orders ports (with associated port numbers), and disagree that “a port ordering algorithm” requires a sequence of unknown, different port numbers, or precludes an ordering of URLs along with an ordering of port numbers, for example.

We begin with the plain language of claim 1, the sole independent claim. Claim 1 recites alternative language (e.g., “a portal computer or a plurality of portal computers”; “a communications port or communications ports”) that results in different configurations. For example, one of the configurations includes providing an identification of a plurality of portal computers and that the plurality of portal computers have a communications port. Petitioner argues that this configuration includes multiple portal computers, each computer having only one port that is the same, *e.g.*, port 80. Pet. Reply 1, 2–3.

We find nothing in claim 1 that states that the port ordering algorithm requires a sequence of unknown and different port numbers. When asked during oral argument whether Patent Owner agreed with Petitioner that claim 1 covers at least having a plurality of portal computers with a communications port, e.g., one port with the *same number* for each of the plurality of portal computers, Patent Owner responded in the affirmative. Tr. 24:14–19, 27:6–15. To read claim 1 to require that the port numbers all be different and unknown would be in direct contrast with the plain claim language and representations made by the parties. Moreover, there is nothing in claim 1 that requires that the port numbers be unknown or that the port ordering algorithm only order port numbers and nothing else.

In support of its arguments that a port ordering algorithm requires a sequence of unknown and different port numbers, Patent Owner directs attention to the following passage in the ’497 patent:

Since the dialing of a port is a relatively slow process, it would take the seeking computer a long time to locate the call-in port of a portal computer. To minimize this time, the broadcast technique uses a port ordering algorithm to identify the port number order that a portal computer should use when finding an

available port for its call-in port. In one embodiment, the broadcast technique uses a hashing algorithm to identify the port order. The algorithm preferably distributes the ordering of the port numbers randomly through out the user port number space and only selects each port number once. In addition every time the algorithm is executed on any computer for a given channel type and channel instance, it generates the same port ordering. As described below, it is possible for a computer to be connected to multiple broadcast channels that are uniquely identified by channel type and channel instance. The algorithm may be “seeded” with channel type and channel instance in order to generate a unique ordering of port numbers for each broadcast channel. Thus, a seeking computer will dial the ports of a portal computer in the same order as the portal computer used when allocating its call-in port.

Ex. 1001, 11:58–12:12.

Patent Owner argues that the portion of the specification reproduced above explains that the ordering of port numbers for a seeking computer to use to find a call-in port of a portal computer can be any sequence of port numbers, and that a person of ordinary skill in the art (“POSITA”) would have understood that the ’497 patent specification teaches that such orderings are for port numbers and not for identifying or ordering different portal computers. PO Resp. 12–13 (citing Ex. 1001, 6:57–62, 11:33–12:33; Ex. 2003 ¶¶ 43–48).

We have reviewed the evidence to which we are directed in support of Patent Owner's argument.⁸ Patent Owner's witness, Dr. Goodrich cites to several passages in the '497 specification describing algorithms, port ordering algorithms, and hashing algorithms, and opines that

Clearly, from these citations it is evident that the ordering of port numbers for a seeking computer to use to find a call-in port of a portal computer can be any sequence of port numbers. In addition, as these and related citations make clear, a POSITA would understand that the '497 Patent specification specifically teaches that such orderings are for port numbers, and not, for example, repeated uses of the same port number on multiple portal computers. See e.g., '497 Patent at 6:57-62 and 11:33-12:33.

Ex. 2003 ¶ 47.

We have reviewed the passages on which Dr. Goodrich relies to reach the above conclusion, but do not give his testimony substantial weight on the issue, because his testimony focuses on a few passages in the '497 patent, while not discussing or considering other passages that tend to contradict his conclusions. For example, the '497 patent states that “[i]n an alternate embodiment, the seeking computer selects a port number according to the algorithm and then dials each portal computer *at that port number.*” Ex.

⁸ Patent Owner's argument that Dr. Karger agrees with its proposed construction of “port ordering algorithm” is not persuasive. The portions of Dr. Karger's testimony that Patent Owner directs attention to (PO Resp. 12 (citing Ex. 2002, 73:21–74:13, and 79:1–5)) are taken out of context. We do not discern that he is agreeing with Patent Owner's proposed interpretation of a port ordering algorithm; rather, he is discussing his views on a disclosed embodiment found in the '497 patent. Ex. 2002, 73 (“[A]nd so what is being suggested *in this embodiment* . . . And furthermore, *this embodiment describes* . . .” (emphasis added)).

1001, 12:49–52 (emphasis added).⁹ Claim 7 depends from claim 1 and recites “when a communications port is selected, attempting to communicate with each of the identified portal computers *through the selected communications port* before selecting the next communications port.” These descriptions appear to be in contrast to Dr. Goodrich’s testimony that the order of port numbers is based on a sequence of differing port numbers and that the specification does not contemplate repeated uses of the same port number on multiple portal computers. Ex. 2003 ¶ 47. Rather, we give substantial weight to Dr. Karger’s testimony, supported by the record, that the specification describes an additional embodiment of “dial[ing] the same port number for every portal computer on the list.” Ex. 1003 ¶ 30. Lastly, and as explained above, when asked during oral argument, counsel for Patent Owner agreed that claim 1 covers having a plurality of portal computers with a communications port, e.g., one port with the *same number* for each of the plurality of portal computers. Tr. 24:14–19, 27:6–15.

Moreover, and with respect to the argument that the port ordering algorithm requires that the port numbers be unknown, Patent Owner does not explain sufficiently, with supporting evidence, why the claims require that the port number be unknown. *See, e.g.*, PO Resp. 42 (citing Ex. 2003 ¶¶ 138–139). Dr. Goodrich, originally testified that the Smart Clients

⁹ This passage goes on to explain that if no acceptable call-in port to the broadcast channel is found, then the seeking computer selects the next port number and repeats the process. Ex. 1001, 12:52–54. But that process is limited to a maximum search depth, e.g., the number of ports it will dial until it exhausts its search depth. *Id.* at 12:58–65. We do not find, nor does Patent Owner direct us to, a description in the specification that restricts the search depth, either for how few or how many ports that can be dialed.

servers use known ports, unlike the portal computers described in the '497 patent, and, thus, do not meet the limitation of a “port ordering algorithm.” Ex. 2003 ¶¶ 138–139. During his cross examination, however, Dr. Goodrich contradicted his direct testimony by explaining that the seeking computer can be aware of the port to contact the portal computer even if it uses a port ordering algorithm. Ex. 1020, 171:6–21, 172:2–11. For all of the above reasons, we are not persuaded that we should narrowly construe the claim 1 “port ordering algorithm” as requiring an ordering of different, unknown, port numbers. Rather, the claim language encompasses an ordering of port numbers that can be the same known number on each of a plurality of portal computers.

We next turn to Patent Owner’s arguments that the port ordering algorithm order only port numbers and nothing else. PO Resp. 13, 42; Tr. 24:1–8, 25:20–24, 27:1–5.¹⁰ Patent Owner argues that an algorithm that orders sockets (i.e., the address (or URL) plus port number) does not meet the claimed port ordering algorithm. *See, e.g.*, PO Resp. 39 (citing Ex. 2003 ¶¶ 133–134); Tr. 25:20–24. We have reviewed the evidence to which we are directed in support of the argument, but do not find such argument and

¹⁰ During oral argument, counsel for Patent Owner was asked whether the algorithm was limited to port numbers only. Counsel for Patent Owner argued that “[n]o, it has to at least care about the ordering of the ports, so it has to at least care about the port numbers. And what we’re saying is that Smart Clients, it doesn’t care about it because it’s always known. So there is no port ordering algorithm.” Tr. 32:19–33:1. This argument does not appear in Patent Owner’s Response, but was presented for the first time during oral argument. We will not consider, to the detriment of Petitioner, Patent Owner’s belated argument that the algorithm “has to care” about the port numbers.

evidence persuasive. In particular, neither Patent Owner nor Dr. Goodrich explain why the claim language is restricted to ordering only port numbers. There are several passages in the '497 patent specification that discuss an “algorithm,” “hashing algorithm,” and a “port ordering algorithm” that appear to be interchangeable terms for the same algorithm. *See, e.g.*, Ex. 1001, 6:60–62, 11:60–65, 12:7–9, 12:18–65. In none of those passages, however, is there a description that the algorithm orders only port numbers. For these additional reasons, we are not persuaded that we should narrowly construe the claim 1 “port ordering algorithm” as requiring only an ordering of port numbers. Rather, the claim language encompasses an ordering of port numbers and other identifiers of a computer.

2. “*call-in port*”

Although the parties provided arguments with respect to the interpretation for “call-in port,” (PO Resp. 14; Pet. Reply 4), counsel for the respective parties indicated during oral argument that no construction of the term was necessary to resolve the issues of this proceeding. Tr. 11:21–12:1, 22:19–23:11. We agree and determine that it is not necessary to construe “call-in port” to resolve the issues before us.

3. “*portal computer*”

Patent Owner argues that the '497 patent defines the term “portal computer” as “a computer that connects or assists in connecting a seeking computer to a broadcast channel by identifying computers to which the seeking computer is to connect.” PO Resp. 14. Patent Owner further argues that because the '497 patent also defines “broadcast channel,” the term portal computer necessarily includes the definition of broadcast channel, which Patent Owner argues is a “logical channel that overlays an underlying

point-to-point communications network.” *Id.* at 15. Patent Owner contends, therefore, that the term “network” recited in the claims refers to a network of computers connected to the broadcast channel. *Id.* at 15–16. Petitioner argues that Patent Owner improperly reads limitations into claim 1 by improperly equating “network” with “broadcast channel” and by adding a recitation about how the portal computer coordinates the connecting, i.e., by identifying multiple computers to which the seeking computer is to connect. Pet. Reply 5.

We are not persuaded by Patent Owner’s arguments that the evidence supports an explicit or implicit limitation on the term “portal computer” as Patent Owner proposes. Patent Owner directs attention to Dr. Goodrich’s testimony on the matter, which largely replicates what is in the Patent Owner Response. PO Resp. 14–15 (citing Ex. 2003 ¶¶ 52–55). Patent Owner also directs attention to various passages throughout the Specification without explaining sufficiently why a person having ordinary skill in the art would have understood all of the various descriptions to set forth with reasonable clarity, deliberateness, and precision a definition for “portal computer.” All of the various passages to which we are directed in the Specification of the ’497 patent describe what the portal computer does, not what it is. Moreover, the words themselves regarding the descriptions of portal computer do not indicate to a person of ordinary skill in the art that the patentee has acted as his own lexicographer. For instance, Patent Owner directs attention to the following passage in support of the contention that Patent Owner acted as his own lexicographer:

Thus, the process of connecting to the broadcast channel includes locating the broadcast channel, identifying the neighbors for the connecting computer, and then connecting to each identified

neighbor. Each computer is aware of one or more “portal computers” through which that computer may locate the broadcast channel. A seeking computer locates the broadcast channel by contacting the portal computers until it finds one that is currently fully connected to the broadcast channel. The found portal computer then directs the identifying of four computers (i.e., to be the seeking computer's neighbors) to which the seeking computer is to connect.

Ex. 1001, 5:34–45.

Neither Patent Owner nor Dr. Goodrich explains how the above passage sets forth an alleged definition. We have reviewed all of the passages to which Patent Owner directs attention, but do not find those passages to support the argument made. There are no words in connection with the descriptions that indicate that the descriptions represent a definition of or otherwise limit the meaning of “portal computer” rather than just provide examples of what a portal computer does. Patent Owner’s proposed construction goes beyond the plain and ordinary meaning of the term by adding elements from the Specification into claim 1.

Claim 1 recites “using the call-in port to request that the portal computer or the plurality of portal computers coordinate the connecting of the seeking computer to the network.” In essence, Petitioner proposes that “portal computer” be construed to have its plain meaning, including the various constraints placed on it by claim 1 itself, such as the one immediately quoted. Pet. Reply 5–7. We agree. Accordingly, we determine that the plain meaning of the term “portal computer” including the various constraints placed on it by the claims themselves, would be sufficiently clear to a person of ordinary skill in the art for purposes of the analysis.

D. Asserted Obviousness over Smart Clients alone or combined with Vahdat

Petitioner contends that claims 1 and 7 are unpatentable under 35 U.S.C. § 103(a) as obvious over Smart Clients with or without Vahdat. Pet. 16–59. We have reviewed the Petition, Patent Owner Response, and Reply, as well as the evidence discussed in each of those papers, and we determine that Petitioner has shown by a preponderance of the evidence that the challenged claims are unpatentable based on the asserted grounds.

1. Public Availability of Vahdat

We first address whether Petitioner has shown that Vahdat is a prior art printed publication under 35 U.S.C. § 102. *See* 35 U.S.C. § 311(b). Petitioner bears the burden to prove that it is. *See* 35 U.S.C. § 316(e). The determination of whether a document is a “printed publication” under 35 U.S.C. § 102 “involves a case-by-case inquiry into the facts and circumstances surrounding the reference’s disclosure to members of the public.” *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004). “Because there are many ways in which a reference may be disseminated to the interested public, ‘public accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication’ bar under 35 U.S.C. § 102(b).” *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016) (quoting *In re Hall*, 781 F.2d 897, 898–99 (Fed. Cir. 1986)). “A reference will be considered publicly accessible if it was ‘disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising

reasonable diligence[] can locate it.’” *Id.* (quoting *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d 1340, 1350 (Fed. Cir. 2008)).

We begin our analysis with an overview of the evidence submitted by Petitioner in support of its contention that Vahdat was publicly accessible at the relevant time. Petitioner asserts that Vahdat is prior art under 35 U.S.C. § 102(a) and § 102(b). Pet. 17–19; Ex. 1013 ¶¶ 143–145. In particular, the Petition asserts that “[a]lthough Vahdat bears no date, it refers to *Smart Clients* as a paper ‘[t]o appear,’ in January 1997.” Pet. 18 (citing Ex. 1007 at 11–12¹¹). Petitioner further asserts that the Internet Archive captured a copy of the Vahdat publication on January 29, 1999. Pet. 18 (citing Ex. 1013 ¶ 143, App’x 20b). Lastly, Petitioner asserts that other publications including a conference paper from 1998 regarding networking cited Vahdat. Pet 18–19 (citing Ex. 1013 ¶¶ 144–145, App’x 20c, 20d).

Exhibit 1013 is a Declaration of Scott Bennett, Ph.D., proffered by Petitioner as a library science expert. *See, e.g.*, Ex. 1013 ¶¶ 1–5. Dr. Bennett testified that Vahdat (“Document 20”) “is a research paper available at a Web site maintained by the Computer Science department at Duke University. Attachment 20a is a copy of Document 20 from this Web site.” *Id.* ¶ 142. Dr. Bennett further testified that “Attachment 20b is a copy of the Internet Archive capture, of 29 January 1999, of an index page including an HTML link to Document 20. This HTML document is substantively the same as the Attachment 20a PDF.” *Id.* ¶ 143. The HTML document has a

¹¹ We understand reference to pages 11–12 is a typographical error, and that footnote 29 of Exhibit 1007 at page 8 of the reference contains the reference to *Smart Clients*.

different URL than the Attachment 20a URL. *Compare* Ex. 1013, Attachment 20a, *with* Ex. 1013, Attachment 20b.

Dr. Bennett further testified that

Attachment 20c is a copy of the list of 12 documents citing Document 20 identified by Google Scholar. These documents were published between 1996 and 1998. Document 20d is a copy of the IEEE Xplore Digital Library record for one of these papers, by J. Carter, ‘Khazana: An Infrastructure for Building Distributed Services,’ in the *Proceedings of the 18th International Conference on Distributed Computing Systems, Amsterdam, 1998*.

Id. ¶ 144.

For purposes of the Decision to Institute, based on the above evidence and showing, and considering Patent Owner’s “bald assertion that Vahdat is not prior art because it bears no date,” we accepted Petitioner’s contention that Vahdat was a paper published, publicly available on the Internet, and actually obtained prior to the July 31, 2000 effective filing date of the involved patent. Dec. 10.

In its Response, Patent Owner argues that Petitioner failed to sufficiently show that Vahdat was publicly available prior to the effective filing date of the ’497 patent. PO Resp. 16. In connection with its Patent Owner Response, however, Patent Owner submitted into evidence a

declaration from Dr. Thomas Anderson (Ex. 2036)¹², who testified as follows:

5. Attached hereto as Exhibit B is a copy of a paper titled "WebFS: A Global Cache Coherent File System." I will refer to this paper as the "WebFS Paper." I co-authored the WebFS Paper with Dr. Vahdat and Paul Eastham as part of the WebOS Project.

6. The WebFS Paper was written in December 1996 and posted to the website for the WebOS project at U.C. Berkeley around that time. That website had the address <http://now.cs.berkeley.edu/WebOS/> (hereinafter, the "WebOSProject Website"). With the exception of the green header, the copy of the WebFS Paper attached as Exhibit B is a true and correct copy of our WebFS Paper as it was available on the <http://now.cs.berkeley.edu/WebOS/> website. The WebFS Paper shown in Exhibit B was available to other researchers on that website before 1999.

7. I am aware that other researchers were finding and citing to the WebFS Paper before 1999. I and the other co-authors of the WebFS Paper had made the source code for WebFS publicly available. No later than July 1998, the WebFS source code had been in day to day use for about six months by twenty users at my website. Additionally, the WebFS source code was publically available for download and had been successfully installed by a number of users not affiliated with me or the other authors of the WebFS Paper. See Ex. C, A. Vahdat, T. Anderson, and M. Dahlin. "WebOS: Operating System Services for Wide Area Applications." Proc. of the Seventh International

¹² We understand that Petitioner served the declaration testimony of Dr. Anderson (Ex. 2036) in response to the evidentiary objection made by Patent Owner. Paper 13, 2–3; Paper 44, 9. Although our rule authorizes a party relying on evidence to which an objection is timely served to respond to the objection by serving supplemental evidence, the rule does not require the party to file the supplemental evidence. 37 C.F.R. § 42.64(b)(2).

Symposium on High Performance Distributed Computing, July 1998. Further, WebFS is described in chapter 4 of Amin Vahdat's thesis, which I supervised and was published in the fall of 1998.

Dr. Anderson's testimony, reproduced above, is persuasive evidence that Vahdat was made publicly available. Indeed, Dr. Anderson testified that he is a co-author of Vahdat and that he was personally aware that the paper he reviewed (a copy of Exhibit 1007 referred to as "the WebFS Paper") was the same paper available on the Berkeley website (<http://now.cs.berkeley.edu/WebOS/>) and available to other researchers on that website before 1999. Ex. 2036 ¶ 6. Importantly, Dr. Anderson testified that "I am aware that other researchers were finding and citing to the WebFS Paper before 1999." We also have considered portions of Dr. Anderson's cross examination testimony regarding the WebFS Paper and availability to the public of such paper, and find such testimony to further support the contention that Vahdat is prior art for purposes of this proceeding. Ex. 2031, 11:2–14:22. In totality, we give Dr. Anderson's testimony (both direct and cross examination) substantial weight, and based on his testimony find that Vahdat was available and actually obtained by persons interested and ordinarily skilled in the art prior to the effective filing date of the involved patent. Dr. Anderson's testimony is consistent with and further corroborates the evidence submitted in connection with the Petition.

Initially, we understand Patent Owner is of the view that we may only rely on evidence submitted by Petitioner in connection with the Petition in making our determination with respect to whether Vahdat is prior art. See, e.g., Tr. 21:4–25, 41:6–42:19. We disagree. See *Rovalma, S.A. v. Bohler-Edelstahl GMBH & Co. KG*, 856 F.3d, 1019, 1027 (Fed. Cir. 2017) (holding

that the Board is not precluded “from relying on arguments made by a party and doing its job, as adjudicator, of drawing its own inferences and conclusions from those arguments, even when the result is use of the party’s submissions against it – subject, of course, to the provision of adequate notice and opportunity to be heard”); *id.* at 1028 (“a tribunal may use a party’s own submissions against it, even if the opposing party bears the burden of persuasion”). Here, Patent Owner submitted into evidence the Declaration testimony of Dr. Anderson (Ex. 2036), to which we give substantial weight for the reasons stated above. Patent Owner has not argued that it would be denied due process if we rely on Dr. Anderson’s testimony. Moreover, Patent Owner cross examined Dr. Anderson before filing its Patent Owner Response and thus had sufficient opportunity to develop arguments regarding Dr. Anderson’s testimony. *See, e.g.*, Ex. 2031, 2, 3. Nonetheless, Dr. Anderson’s testimony stands unrebutted and is compelling evidence as to the Vahdat prior art issue.

Patent Owner argues that Dr. Anderson admitted that papers on the <http://now.cs.berkeley.edu/WebOS/> website were identified by author or title, which is insufficient, as a matter of law, to demonstrate public accessibility. PO Resp. 19 (citing Ex. 2031, 12:13–19). Patent Owner’s myopic view of Dr. Anderson’s testimony does not withstand further scrutiny. Although Dr. Anderson did testify that he recalled that articles “were generally available with the name - - the authors and the name of the title” he further explained that “[t]he project as a whole was one that was sponsored by a number of industrial companies” and that such people would be directed “to our website as the primary way that we would disseminate information to them about the work we were doing that they were

supporting.” Ex. 2031, 12:24–13:3. Dr. Anderson went on to testify that “[o]ther people who were not our industrial partners would also know about the work” and that “it was a well-known website, lots of people visited” and that he was aware through records that “people who are well-known in the community had referenced the paper kind of shortly after it appeared.” Ex. 2031, 12:13–13:17. Based on the totality of Dr. Anderson’s testimony, we are persuaded that Vahdat was publicly accessible.

Patent Owner further argues that there is no evidence that Vahdat (Exhibit B attached to and referenced in Ex. 2036 ¶ 5, reproduced above) is the same paper that was available at the <http://now.cs.berkeley.edu/WebOS/> website. PO Resp. 19. There is, however, evidence that the content of what is in Vahdat is the same thing that was available on the Berkeley website. Dr. Anderson testifies as such. Ex. 2036 ¶ 6 (“With the exception of the green header, the copy of the WebFS Paper attached as Exhibit B [Vahdat] is a true and correct copy of our WebFS Paper as it was available on the <http://now.cs.berkeley.edu/WebOS/> website.”). We credit Dr. Anderson’s un rebutted testimony and disagree with Patent Owner that something more was required, e.g., an actual copy of the Vahdat reference from the Wayback machine showing the paper came from the <http://now.cs.berkeley.edu/WebOS/> website.

Patent Owner also argues that Petitioner’s showing with respect to Vahdat is insufficient because the copy of Vahdat obtained through the Wayback machine is not the same as the copy of Vahdat submitted into evidence with the Petition (e.g., Ex. 1007). *See, e.g.*, PO Resp. 18. In essence, Patent Owner argues that the version of Vahdat submitted into evidence by Petitioner has figures that are missing in versions obtained

through the Wayback machine, and, therefore, is inadmissible. We are not persuaded by Patent Owner's argument that the version of Vahdat submitted into evidence by Petitioner is inadmissible because it is a different version than what was retrieved on the Wayback machine (e.g., Ex. 2035). Notably, Petitioner does not rely on any of the Vahdat figures in its obviousness showing (Pet. Reply 10 n.5), and Patent Owner does not dispute that the text in the subsequent version of Vahdat obtained from the Wayback machine is identical to the Vahdat submitted into evidence by Petitioner. *See, e.g.*, Tr. 41:7–42:19.

Based on the record before us, we conclude that Vahdat is a printed publication that was publicly available and obtained by persons interested and ordinarily skilled in the art prior to the effective filing date of the involved patent.

2. *Summary of Smart Clients*

Smart Clients describes techniques for migrating server functionality to client machines to improve overall quality of service. Ex. 1005, 105 (Abstract). Smart Clients describes how its system can be used to provide transparent access to scalable and/or highly available network services, including prototypes for telnet, FTP, and an Internet chat application. *Id.* Smart Clients describes how multiple clients can connect to one or more servers in order to access service. *Id.* at Fig. 7. Each client runs Smart Client, which includes a client interface applet and a director applet. *Id.* at 108. The client interface applet is responsible for accepting user input and packaging requests to the director applet. The director applet is used to invoke a service-specific mechanism for determining the correct destination server for a request. *Id.* The director applet makes a service-specific choice

of a physical host to contact based on an internal list of server sites and balances load among servers while maximizing performance to the end user. *Id.* One described method of choosing a host is by randomly picking among service providers. *Id.* Another method involves maintaining load information for each server so that the client is able to maximize performance by weighing a combination of network connectivity, server performance, and current server load. *Id.* at 109.

Figure 7, reproduced below, shows an implementation of the chat application using Smart Client.

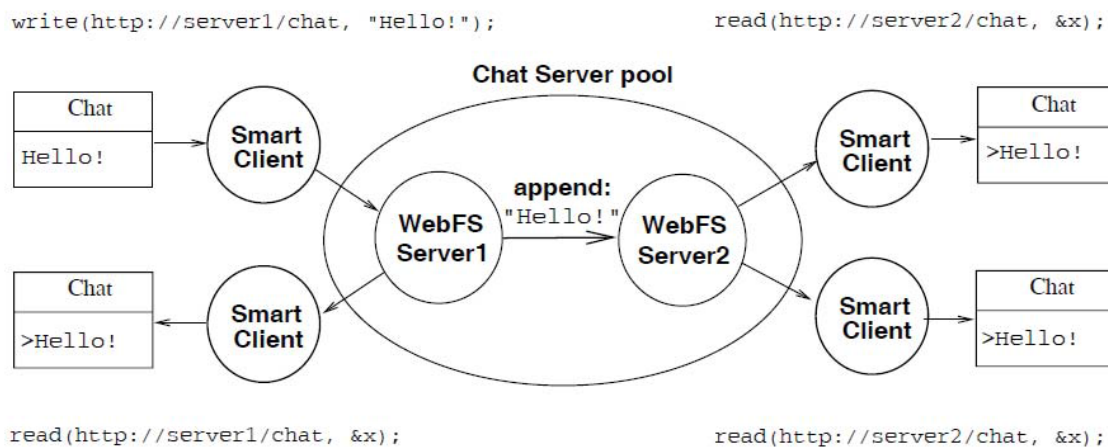


Figure 7 of Smart Clients depicts a chat application

Smart Clients' chat application is implemented as Java applets that run through a Web browser. *Id.* at 113. Chat rooms are modeled as files with reads corresponding to receiving conversation updates and writes corresponding to sending out a message. *Id.* at 114. On a write, the WebFS updates all its clients; the updates are propagated to other servers in a lazy fashion. *Id.*

3. Summary of Vahdat

Vahdat describes building and implementing WebFS for two prototype applications, including a scalable Internet chat application. Ex. 1007, 1. Vahdat describes that for WebFS, “[t]he URL naming convention of appending a colon plus a port number is maintained for naming servers running on non-standard ports.” Ex. 1007, 2.

4. Analysis of the Asserted Unpatentability Grounds

Claim 1

Petitioner asserts that independent claim 1 would have been obvious over Smart Clients either alone or in combination with Vahdat. Pet. 22–32. The preamble of claim 1 recites “[a] method in a computer for locating a computer through which to connect to a network.” Ex. 1001, 29:25–26. The parties equate the computer in which the method resides with the further claimed “seeking computer” and the computer that is located with the further claimed “portal computer.” See, e.g., PO Resp. 23–24, Pet. Reply 10–12.

Petitioner contends that Figure 2 of Smart Clients describes two service-specific Java applets (client interface applet and director applet) that are supplied to mediate server access. Pet. 22. Petitioner explains, with supporting evidence, that an applet is a program that can be downloaded quickly and used by any computer equipped with a Java-capable browser and that carries its own software players, and, thus, Smart Clients describes a “method in a computer.” *Id.*; Ex. 1005, 108; Ex. 1006, 61 (definition of applet); Ex. 1003 ¶ 70. Petitioner further contends that during the process of retrieving applets, the client machine retrieves a service certificate, which “contains some initial guess as to service group membership.” Pet. 22; Ex.

1005, 110; Ex. 1003 ¶ 71. The director applet can “validate the list by contacting one of the nodes.” Ex. 1005, 110, Fig. 4; Ex. 1003 ¶ 71.

Petitioner asserts that when a client is using Internet chat, the Smart Client contacts one of the nodes and validates its list (Ex. 1005, 110), and a WebFS file may be opened (*id.* at 113). Pet. 22–23; Ex. 1003 ¶ 72. The WebFS file is replicated across multiple servers, each of which serves different Smart Clients. *See* Ex. 1005, 113 (“WebFS also accumulates updates, and . . . propagates the updates to other servers in the WebFS group.”); *id.* at 114 (Fig. 7); Ex. 1003 ¶ 72. By connecting to a computer specified in the service certificate, Petitioner contends, Smart Clients executes a process of “locating a computer through which to connect to a network.” Pet. 23. Petitioner asserts that the network is the collection of WebFS group servers and Smart Clients engaged in a chat session. *Id.*; Ex. 1003 ¶ 72. Notwithstanding Patent Owner’s arguments, including Patent Owner’s objective evidence of nonobviousness, which we address below, we are persuaded by Petitioner’s showing explained above, which we adopt as our own, that Smart Clients describes “a method in a computer for locating a computer through which to connect to a network.”

Patent Owner argues that Smart Clients does not meet the preamble. PO Resp. 23–28.¹³ Patent Owner’s arguments are based on its proposed construction for “portal computer.” In particular, Patent Owner argues that “locating a computer through which to connect to a network” means that it is not sufficient to be connected to the located computer (portal computer), but that the located computer operates to establish a connection between a seeking computer and a network by identifying neighbors for the seeking computer to connect to. *Id.* at 23. Patent Owner further contends that “Smart Clients discloses a technique in which a client simply connects to a server, without the server being a computer ‘through which’ the client connects to a network.” *Id.* at 24–25 (citing Ex. 2003 ¶ 93). Patent Owner further argues that in Smart Clients, the client connects to a single WebFS server to download a file and never connects to a network through the WebFS server. *Id.* at 25 (citing Ex. 2003 ¶¶ 93, 95). Patent Owner argues that “connecting to a network requires establishing a direct connection—an edge—to a computer that is part of the network.” *Id.* (citing Ex. 2022, 23:18–24:8).

¹³ We disagree with Patent Owner’s tangential argument that Dr. Karger’s obviousness analysis (Exhibit Ex. 1003) is deficient for failure to consider secondary considerations, as Patent Owner alleges. *See* PO Resp. 20–21. Patent Owner directs us to no authority for the proposition that Dr. Karger’s declaration, submitted at the time of the Petition, was required to anticipate and address secondary considerations that had not yet been articulated by Patent Owner and submitted for the record. We have considered *Intri-Plex Technologies, Inc. v. Saint-Gobain Performance Plastics Rencol, Ltd.*, IPR2014-00309 (Paper 83) (PTAB Mar. 23, 2014), cited by Patent Owner, but that case simply states that secondary considerations, *if in evidence*, must be considered. *See* slip op. at 35.

Patent Owner's arguments are not commensurate in scope with the claim language. Claim 1 does not require that the located computer (portal computer) connects to the network by identifying neighbors for the seeking computer to connect to, or that to connect to a network, the locating computer (seeking computer) must be directly connected to every computer in the network. We have reviewed Dr. Goodrich's testimony in support of Patent Owner's arguments, but do not find his testimony to be particularly helpful, since his testimony is also premised on an unduly narrow construction of what claim 1 requires. As an illustration, Dr. Goodrich testifies that "[w]hile the WebFS servers send occasional updates to each other and to clients, they are not connected to each other nor form a broadcast channel. As the '497 Patent explains, after finding the portal computer and the call-in port, the seeking computer is connected to broadcast channel network which is not taught by the prior art." Ex. 2003 ¶ 95. Dr. Goodrich's testimony is misguided as it is based on features found in the Specification of the '497 patent, but not claimed. *See, e.g., id.* ¶¶ 92, 95.

Moreover, even Dr. Goodrich acknowledges that the Smart Clients WebFS servers send updates to each other (e.g., other WebFS servers) and to clients, but he nonetheless contends that the WebFS servers and clients are not connected to each other. *Id.* ¶ 95. We find that a person having ordinary skill in the art would have understood that the WebFS servers and clients are connected to each other. If they were not, then they could not receive updates or communicate to each other. Specifically, Smart Clients describes that in its Internet chat application, "[o]n receiving a file update (new message), WebFS *sends the update to all clients* which had opened the file

for reading (i.e., all chatters in a room).” Ex. 1005, 113 (emphasis added). And further, “[u]pon receiving a client update, WebFS *distributes the update to each of the chat clients connected to it,*” each server “*propagates the updates to other servers in the WebFS group,*” and “WebFS *updates all its clients; the updates are propagated to other servers in a lazy fashion.*” *Id.* at 113–114 (emphasis added). These descriptions in Smart Clients clearly indicate that the WebFS servers and client computers form a network (“Internet chat”). We therefore give substantial weight to Dr. Karger’s testimony that when a client computer connects to a WebFS server, that client computer is then connected to the network of other WebFS servers and client computers by virtue of the fact that the client computer can communicate with other client computers and WebFS servers. *See, e.g.,* Ex. ¶¶ 72, 81. We disagree that the client computers need be physically connected to each of the other client computers in the network, as Patent Owner appears to suggest, because claim 1 does not require such connections.

Claim 1 recites “providing an identification of a portal computer or a plurality of portal computers.” Petitioner contends that to retrieve the Java applets, a “URL points to a page containing a *service certificate,*” which “contains some initial guess as to service group membership,” and that among the fields of data provided is a list of node URLs: “u81.cs.berkeley.edu,” “u82.cs.berkeley.edu,” etc. Pet. 23; Ex. 1005, 111 (Fig. 4). Petitioner concludes that a person of ordinary skill in the art would have understood that the identified servers, e.g., “u81.cs.berkeley.edu,” “u82.cs.berkeley.edu” (list of WebFS servers in a service group) are “portal computers” since each allows the Smart Client to access the network of

WebFS servers running a particular chat session. Pet. 23–24; Ex. 1005, 113; Ex. 1003 ¶¶ 75, 76. We are persuaded by Petitioner’s showing, and agree that the list of WebFS servers are “portal computers” that are identified through the list of URLs.

Patent Owner’s arguments with respect to “providing an identification of a portal computer or a plurality of portal computers” are largely the same as discussed above. In particular, Patent Owner argues that Smart Clients’ WebFS servers are not portal computers because they do not connect or assist in connecting a seeking computer (client computer) to a broadcast channel by identifying computers to which the seeking computer is to connect. PO Resp. 28–32. As explained above, Patent Owner’s arguments are not commensurate with the broad scope of claim 1. Moreover, we do not adopt Patent Owner’s proposed construction for “portal computer” as discussed in the claim construction section of this decision. As explained, a WebFS computer that connects to a client computer (seeking computer) is a portal computer. Moreover, the WebFS computer connects the client computer to the network that includes other client computers and WebFS servers for the reasons already discussed.

Claim 1 further recites the portal computer or the plurality of portal computers have a “communications port or communications ports with a call-in port being enabled for communications when the portal computer or the plurality of portal computers is in a state to coordinate the connection of a seeking computer to the network.” Petitioner contends that “server1” and “server2” shown in Figure 7 of Smart Clients are HTTP servers. Pet. 24. Petitioner also contends that a person of ordinary skill in the art would have understood that the WebFS servers accepting HTTP requests are assigned

standard port 80, which is a call-in port. *Id.* at 24–25. Petitioner further contends that a person of ordinary skill in the art would have understood that the first port of the first server in a pool of servers would have constituted a call-in port for the group. *Id.* at 25; Ex. 1005, 114, Fig. 7; Ex. 1003 ¶¶ 78–82. Petitioner explains that by establishing a connection to WebFS Server1, for example, and by initiating a chat session, the Smart Client is connecting to the entire group of WebFS servers and other Smart Clients. Pet. 25–26.

Alternatively, Petitioner argues that to the extent the use of ports was not readily apparent from Smart Clients, a person having ordinary skill in the art would have found the use of ports obvious in light of Vahdat. Pet. 26; Ex. 1003 ¶ 84. Petitioner asserts that Vahdat teaches that for WebFS the URL naming convention of appending a colon plus a port number is maintained for naming servers running on non-standard ports. Pet. 26; Ex. 1007, 2. Petitioner provides a rationale for combining Smart Clients with Vahdat’s explicit teaching of using port numbers for identifying a port. Pet. 27. As pointed out by Petitioner, WebFS (described in both Vahdat and Smart Clients) was known at the time of the invention to run on the Internet, using TCP/IP protocol, which relies on port numbers to allow communication between hosts. *Id.* (citing Ex. 1003 ¶ 85). Petitioner contends that the combination of Smart Clients with Vahdat’s specific teaching of using port numbers is nothing more than the use of a predictable and necessary variant on what is described in Smart Clients and a person would have been motivated to use the port numbers for TCP/IP in Internet applications. *Id.* We are persuaded by Petitioner’s showing, and agree that record evidence supports Petitioner’s contentions that it would have been obvious that the Smart Clients WebFS servers would have had associated

with them port numbers (ports) as evidenced by Dr. Karger's testimony alone, or further in view of Vahdat.

Patent Owner argues that a person having ordinary skill in the art would have understood the claim 1 phrase of a portal computer "in a state to coordinate the connection of a seeking computer to the network" would require a portal computer to connect a seeking computer to a broadcast channel. PO Resp. 32–33. Again, Patent Owner's argument is not commensurate with what is required by claim 1. Claim 1 does not recite nor require a portal computer to connect a seeking computer to a broadcast channel. Patent Owner further argues that the client in either of Smart Clients or Vahdat receives a single file to create an illusion of a chat room and that the client is not connected to a broadcast channel. *Id.* at 33. We have addressed a similar argument above. In particular, we explain why Smart Clients does describe a client computer connected to a network through a WebFS server. It is of no moment that the client is receiving files from the WebFS server to open and read. Claim 1 does not preclude the seeking computer from doing so. Moreover, and as explained above, communications are made from clients to other clients and from WebFS servers to other WebFS servers through the Network by the updating and downloading of files. We, thus, disagree with Patent Owner that the client computer "receives the file and that is the end of the process." PO Resp. 33.

Moreover, Figure 7 of Smart Clients (reproduced above) illustrates the connection of the clients and WebFS servers through the network, whereby the clients and WebFS servers are "connected" through a "network." We have considered Patent Owner's arguments that Smart Clients does not coordinate the connection of a seeking computer to the network, discussing

in particular Figure 7 of Smart Clients, because the WebFS application relies on a concept known as “cache coherence.” PO Rep. 34–35 (citing Ex. 1007, 1, 4; Ex. 2003 ¶¶ 119–122). Patent Owner does not explain sufficiently why cache coherence matters. Dr. Goodrich’s supporting testimony in that regard is based on a narrow interpretation of claim 1. See Ex. 2003 ¶ 120 (“WebFS is a not a *broadcast channel* because it does not care to create connections, only that its cache of web files are the latest version.”). Claim 1 does not recite a broadcast channel and all that that employs.¹⁴ Patent Owner had an opportunity to claim these features, both during original prosecution, and in this proceeding, but made the litigation decision not to. We will not now read so much into broad claim 1.

Claim 1 further recites “the call-in port is a type of communications port.” Petitioner explains that the call-in port in Smart Clients is a HTTP port that is used to connect the Smart Client to the chat server pool. Pet. 27; Ex. 1003 ¶ 86. Petitioner also relies on Vahdat for disclosing that the URL naming convention of appending a colon plus a port number is maintained for naming servers running on non-standard ports. Pet. 27–28; Ex. 1007, 2; Ex. 1003 ¶ 87. Petitioner concludes that a person having ordinary skill in the art would have understood that Smart Client contacts a call-in port on the WebFS server using a communications port, and, to the extent necessary, it

¹⁴ As explained above in the claim construction section, Patent Owner not only argues that claim 1 requires that the portal computer be interpreted to mean “a computer that connects or assists in connecting a seeking computer to a broadcast channel by identifying computers to which the seeking computer is to connect” (PO Resp. 14), Patent Owner also contends that included in that interpretation is that a broadcast channel means a “logical channel that overlays an underlying point-to-point communications network” (*id.* at 15).

would have been obvious to use such ports as disclosed by Vahdat. Pet. 28. We are persuaded by Petitioner's showing, and agree that record evidence supports Petitioner's contentions that it would have been obvious that the Smart Clients WebFS servers would have had associated with them a call-in port that is a type of communications port as evidenced by Dr. Karger's testimony alone, or further in view of Vahdat.

Petitioner contends that Smart Clients describes "selecting the communications port or communications ports of the portal computer or plurality of portal computers and attempting to communicate with the selected communications port or communications ports until communications with the call-in port is successful" of claim 1 since a person of ordinary skill in the art would have understood the description of selecting the "best node" (Ex. 1005, 109, Fig. 3) as selecting a URL, and thus a port. Pet. 28; Ex. 1003 ¶¶ 89–91. Petitioner further contends, with supporting evidence, that Smart Clients describes attempts to communicate with various communications ports on different servers until a connection is established with the call-in port. Pet. 29; Ex. 1003 ¶ 98. We are persuaded by Petitioner's showing, and agree that record evidence supports Petitioner's contentions that it would have been obvious that the Smart Clients WebFS servers would have had associated with them port numbers (ports) as evidenced by Dr. Karger's testimony and also Vahdat and that such ports would be selected for communication purposes.

Petitioner also addresses the claim 1 recitation of "wherein a port ordering algorithm is used to identify the call-in port, and wherein the communications ports selected by the port ordering algorithm may be re-ordered." Pet. 30–31; Ex. 1005, 105, 108–110; Ex. 1003 ¶¶ 65, 99, 100,

102. For example, Petitioner asserts that Smart Clients' director applet makes a service-specific choice of a physical host (server, and thus the port) to contact based on an internal ranked list of server sites. *Id.* Petitioner further explains that the list may dynamically change, which one of ordinary skill in the art would have understood to mean that the algorithm used to prepare the list can re-order the list. Pet. 31; Ex. 1003 ¶ 102. We are persuaded by Petitioner's showing, and agree that record evidence supports Petitioner's contentions that an algorithm is used to identify the call-in port, and the communications ports selected by the algorithm may be re-ordered. Smart Clients' director applet makes a service-specific choice of a physical host (server, and thus the port) to contact based on an internal ranked list of server sites. Ex. 1005, 105, 108–110. Smart Clients describes that the list may dynamically change, and we find that there is sufficient evidence in support of the contention that a person of ordinary skill in the art would have understood that description in Smart Clients to mean that the algorithm used to prepare the list can re-order the list. Ex. 1003 ¶ 102.

Patent Owner argues that claim 1 “is directed to the searching of ports whereas Smart Clients at most discusses connection to a well-known port.” PO Resp. 39. Patent Owner further argues that where a port is known, there is no need for a port ordering algorithm to find the call-in port, nor is there a circumstance in which a client will attempt to communicate with a selected communications port or communications ports until communications with the call-in port is successful. *Id.* at 40–41. Patent Owner further argues that the list for ranking servers described in Smart Clients is not generated by a port ordering algorithm, but rather a server ordering algorithm. *Id.* at 42.

We have considered all of Patent Owner’s arguments (*id.* at 37–44) regarding the port ordering algorithm limitation (e.g., what Patent Owner identifies as limitation 1(d)), but do not find such arguments persuasive. The arguments are premised on a narrow interpretation of the port ordering algorithm, for example, which we do not adopt for reasons provided earlier in this decision. Importantly, and as explained above, the claims do not preclude a plurality of portal computers all having the same known port number.

Moreover, we are not persuaded by Patent Owner’s arguments that an algorithm that orders sockets (i.e., the address (or URL) plus port number) does not meet the claimed port ordering algorithm. *See, e.g.*, PO Resp. 39 (citing Ex. 2003 ¶¶ 133–134); Tr. 25:20–24. As explained in the claim construction section of this opinion, we are not persuaded by this argument. Accordingly, Patent Owner’s argument that the call-in port be unknown, different, or limited to ordering only ports is not persuasive. It is uncontested that Smart Clients uses an algorithm to order sockets, which includes both a URL (address) and a port number. We find that that Smart Clients description meets the “port ordering algorithm” limitation of claim 1.

Patent Owner argues that Petitioner fails to show how Smart Clients with or without Vahdat discloses the claim limitation “wherein the communications ports selected by the port ordering algorithm may be re-ordered.” PO Resp. 44–45. We disagree. As explained above, the record evidence supports the contention that Smart Clients uses a load balancing mechanism that reorders the list of servers, and thus ports. Pet. 30–31 (citing Ex. 1005, 109; Ex. 1003 ¶ 102). We disagree with Patent Owner that

claim 1 precludes ordering a known port with the same number for different servers.

Claim 1 recites “using the call-in port to request that the portal computer or the plurality of portal computers coordinate the connecting of the seeking computer to the network.” Petitioner explains that the call-in port for the WebFS servers disclosed by Smart Clients is port 80, or one of the “non-standard ports” described by Vahdat, and that Smart Clients sends to WebFS servers requests through the call-in port. Pet. 31–32 (citing Ex. 1005, 108; Ex. 1003 ¶¶ 104–105). Petitioner further explains that a POSITA would have understood that Smart Clients teaches using the call-in port to make a request to a portal computer. *Id.* at 32. Petitioner further explains that for Internet chat, a request may open a well-known file associated with the room, which allows the Smart Client to access a specific chat room and connect to all WebFS servers and Smart Clients that have access to the file. Pet. 32 (citing Ex. 1005, 113; Ex. 1003 ¶ 106). Petitioner contends that the connectivity between the various WebFS servers and Smart Clients shows that the entities have formed a network, and that the call-in ports thus facilitate connection of a Smart Client (seeking computer) to a network. *Id.* Patent Owner’s arguments with respect to this limitation are the same as those with respect to the preamble, which we addressed above. *See, e.g.*, PO Resp. 45–46.

In sum, notwithstanding Patent Owner’s arguments, including Patent Owner’s objective evidence of nonobviousness, which we have also considered and address in detail below, we are persuaded by Petitioner’s showing, which we adopt as our own, that claim 1 is unpatentable based on Smart Clients with or without Vahdat.

Claim 7

Claim 7 depends from claim 1 and recites “wherein the identification of a plurality of portal computers is provided and when a communications port is selected, attempting to communicate with each of the identified portal computers through the selected communications port before selecting the next communications port.” Ex. 1001, 30:7–12.

Petitioner contends that Smart Clients discloses that if an attempt to contact a server fails, “the director applet can reinvoke the load balancing mechanism to choose an alternative server and reapply the request.” Pet. 33; Ex. 1005, 109, 113; Ex. 1003 ¶ 112. Petitioner further contends that Smart Clients teaches how, “‘when a communications port is selected’—*e.g.*, using standard port 80—communications are attempted ‘with each of the identified portal computers through the selected communications port’ (Ex. 1001 at 30:9-11) on the list before returning a false indication indicating that ‘all servers have failed.’” Ex. 1005, 111; Ex. 1003 ¶ 112. Petitioner recognizes that Smart Clients does not describe that, after failing to contact any servers running the Internet chat application on the HTTP port, the “next communications port may be selected” as required by claim 7. Petitioner, however, contends that doing so would have been obvious to a person of ordinary skill in the art at the time of the invention. In particular, Petitioner contends, with supporting evidence, that a person of ordinary skill would have recognized that a server can run multiple applications, only one of which is an Internet chat application, and that the reason for ports is to permit clients to access different processes on the same server. Pet. 34; Ex. 1003 ¶ 113. With that in mind, Petitioner contends, a person having ordinary skill in the art would have known how to configure a server to run

each of three applications (Internet chat, FTP, and TELNET), particularly where cost was a concern. Pet. 34; Ex. 1003 ¶ 114. Petitioner further contends that when the Smart Clients chat application was not responding, a user would have used TELNET (port 23) to troubleshoot the problem to diagnose it in an attempt to restore service. *Id.* at 35; Ex. 1003 ¶¶ 116–117. We adopt Petitioner’s findings and reasons for modifying Smart Clients for claim 7.

Patent Owner makes similar arguments that we have addressed above, namely that Smart Clients alone or in combination with Vahdat fails to meet the limitations of claim 7 because “the ports of the WebFS servers are *known a priori*.” PO Resp. 46 (citing Ex. 2003 ¶ 160). As discussed above, claim 1 does not require that the ports be unknown, and, therefore, we are not persuaded by Patent Owner’s “known port” argument. Patent Owner also argues that Petitioner’s proposed modification misunderstands the purpose of Smart Clients, which is to move load balancing tasks to the client side and provide a list of servers that provide the same services. PO Resp. 47–48 (citing Ex. 2003 ¶¶ 161–164). We disagree that Petitioner misunderstood the purpose of Smart Clients in presenting its case of obviousness for claim 7. Dr. Karger presents a sufficient factual basis in support of Petitioner’s arguments with respect to claim 7 by explaining that a person having ordinary skill in the art would have known that a given server can run several applications and that a server (or group of servers) could be configured to run each of the three Smart Clients applications (Internet chat, FTP, and TELNET). Ex. 2003 ¶¶ 113–117. Dr. Karger further explains that a person having ordinary skill in the art would have found it obvious and been motivated to include each of the three applications disclosed in Smart

Clients (Internet chat, FTP, and TELNET) on all servers in the same server pool in order to diagnose problems with servers and to save costs by implementing a variety of services on a lower number of servers. *Id.* We give substantial weight to Dr. Karger's testimony, but do not do so with respect to Dr. Goodrich's testimony. Dr. Goodrich does not explain or rebut Dr. Karger's theory, but instead he opines that Smart Clients (and Vahdat) does not care about port numbers because all ports are known *a priori* and that Smart Clients does not describe using a single server to run multiple applications. We give little weight to Dr. Goodrich's testimony because it is based on an unduly narrow interpretation of what is claimed and a misunderstanding of Petitioner's obviousness analysis. Notwithstanding Patent Owner's arguments, including Patent Owner's objective evidence of nonobviousness, which we have considered and which we address below, we are persuaded by Petitioner's showing, which we adopt as our own, that claim 7 is unpatentable based on Smart Clients with or without Vahdat.

E. Asserted Obviousness over Smart Clients, ONE-IP, and Karger, or over Smart Clients, Vahdat, ONE-IP, and Karger

Petitioner contends claims 3–5 are unpatentable under 35 U.S.C. § 103(a) as obvious over Smart Clients, ONE-IP, and Karger, with or without Vahdat. Pet. 36–40. Relying on the testimony of Dr. David R. Karger, Petitioner explains how the prior art allegedly teaches or suggests all of the claim limitations. *Id.* (citing Ex. 1003).

1. Summary of ONE-IP

ONE-IP describes two techniques for providing client requests for a single service to different machines in a cluster. Ex. 1009, Abstract. A first technique is based on a central dispatcher routing IP packets to different

machines, and the second technique is based on packet broadcasting and local filtering. *Id.* at 1020. ONE-IP describes that when a client request reaches a cluster, some mechanism is required to select one machine to process the request. *Id.* at 1022. A dispatcher uses a static dispatching algorithm that selects servers solely based on a hash value of the client IP addresses. *Id.*

2. *Summary of Karger*

Karger describes a web caching strategy based on consistent hashing. Consistent hashing provides an alternative to multicast and directory schemes, and has advantages in load balancing and fault tolerance. Ex. 1012, 1. Karger describes the use of a hashing algorithm on the client-side for load balancing among web caches. *Id.* at 4.

3. *Analysis*

Claim 3 depends from claim 1 and recites “wherein the communications ports are selected based on a hashing algorithm ordering.” Petitioner acknowledges that Smart Clients does not describe a hashing algorithm for ordering ports, but contends that it would have been obvious to implement the random picking of servers using a hashing algorithm ordering based on the teachings of ONE-IP and Karger. Pet. 36–38; Ex. 1003 ¶ 129. In particular, Petitioner contends that ONE-IP balances load using hashing algorithms on the server-side, and Karger describes the use of a hashing algorithm on the client-side for load balancing among web caches. Petitioner further explains that a person having ordinary skill in the art at the time of the invention would have found it obvious to employ hashing algorithm ordering to balance load among servers. *Id.*

Claim 4 depends from claim 3 and recites “wherein the hashing algorithm ordering provides an ordering in which each communications port is selected without re-selecting a communications port.” Ex. 1001, 29:56–59. Claim 5 also depends from claim 3 and recites “wherein the hashing algorithm ordering is modified to reduce conflicts with other seeking computers that use the same hashing algorithm.” *Id.* at 30:1–3. Petitioner accounts for the additional limitations of claims 4 and 5 and provides reasons for combining the prior art. Pet. 38–40. We adopt Petitioner’s rationale as our own findings and reasons for modifying Smart Clients for claims 3, 4, and 5.

Patent Owner makes the same arguments for claims 3–5 as it does for claim 1. PO Resp. 48–49. For reasons discussed above, we do not find such arguments persuasive. Patent Owner does not make any arguments regarding the additional limitations of claims 3–5. *Id.* Notwithstanding Patent Owner’s arguments, including Patent Owner’s objective evidence of nonobviousness, which we have considered and which we address below, we are persuaded by Petitioner’s showing, which we adopt as our own, that claims 3–5 are unpatentable as obvious over Smart Clients, ONE-IP, and Karger, with or without Vahdat.

*F. Asserted Obviousness over Smart Clients and Naugle
or over Smart Clients, Vahdat, and Naugle*

Petitioner contends claim 8 is unpatentable under 35 U.S.C. § 103(a) as obvious over Smart Clients and Naugle, with or without Vahdat. Pet. 40–42. Relying on the testimony of Dr. Karger, Petitioner explains how the prior art allegedly teaches or suggests all of the claim limitations. *Id.* (citing

Ex. 1003). Patent Owner counters that claim 8 is patentable over the cited prior art. Prelim. Resp. 24.

Claim 8 depends from claim 1 and recites “wherein the communications ports are TCP/IP ports.” Petitioner contends that FTP, TELNET, and Internet chat applications referred to in Smart Clients would have been readily understood by a person having ordinary skill in the art as running on TCP/IP. Pet. 41; Ex. 1008, 241, 249; Ex. 1003 ¶ 137. Petitioner argues, however, that even if Smart Clients did not convey the use of TCP/IP ports, it would have been obvious to use TCP/IP ports, providing rationale and directing attention to Naugle as evidence that at the time of the invention the use of TCP/IP was ubiquitous. Pet. 41–42; Ex. 1008, 241, 249; Ex. 1003 ¶¶ 137–139.

Patent Owner makes the same arguments for claim 8 as it does for claim 1. PO Resp. 50. For reasons discussed above, we do not find such arguments persuasive. Patent Owner does not make any arguments regarding the additional limitations of claim 8. *Id.* Notwithstanding Patent Owner’s arguments, including Patent Owner’s objective evidence of nonobviousness, which we have considered and which we address below, we are persuaded by Petitioner’s showing, which we adopt as our own findings and conclusions, that claim 8 is unpatentable as obvious over Smart Clients and Naugle, with or without Vahdat.

G. Objective Indicia of Non-Obviousness

Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The totality of the evidence submitted, including objective evidence of

nonobviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984).

Secondary considerations may include any of the following: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17; *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). However, to be given substantial weight, the proponent must demonstrate a nexus between the merits of the claimed invention and the evidence of secondary considerations. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). “Nexus” is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988).

In its Response, Patent Owner presents evidence and arguments as to long-felt need, unexpected results, licensing and commercial success, industry praise, and copying. PO Resp. 50–57. Patent Owner also relies on the declaration of Dr. Bims in support of its contentions. *See* Ex. 2004.

1. Long-felt need and failure of others

Patent Owner contends the “invention solved the problem that the technologies that were available could not support a high number of portal computers without the risk of bottlenecking or even the complete failure of an entire network if a computer or a server failed.” PO Resp. 52 (citing Ex. 2004 ¶¶ 42–44). Patent Owner also contends the inventors (Fred Holt and Virgil Bourassa) began trying to solve the problem at the request of Boeing

management to allow a peer-to-peer communication platform with more than two users to communicate reliably and with low delay. *Id.* at 52 (citing Ex. 2006 ¶¶ 3, 4, 7). According to Dr. Bims, Patent Owner contends, this “problem existed for years” prior to the ’497 patent. *Id.* (citing Ex. 2004 ¶¶ 42–47).

We do not find this evidence persuasive. To begin with, the proffered evidence must show a long-felt need *recognized by those of ordinary skill in the art*. *In re Gershon*, 372 F.2d 535, 538 (CCPA 1967). Here, Patent Owner relies on the inventors’ recognition of the problem, which does not indicate it was a significant one. *See id.* (“[O]ne may question whether in fact such a ‘problem’ objectively existed, as distinguished from its acknowledged subjective existence in the minds of the inventors and their patent counsel.”). Although Patent Owner also cites its declarant Dr. Bims’s testimony that the problem existed for years, this, too, is based solely on his review of the inventors’ declaration and does not independently corroborate the existence of the long-felt need or failure of others. *See* Ex. 2004 ¶¶ 42–47 (“Based on Mr. Bourassa’s declaration, it is my opinion that they were solving a long felt need as the systems at the time did not support the collaboration of many participants in a reliable manner.”).

Additionally, we agree Patent Owner provides little evidence of nexus to the claimed invention. *See* Pet. Reply 23. “[O]bjective evidence of non-obviousness must be commensurate in scope with the claims.” *Allergen, Inc. v. Apotex Inc.*, 754 F.3d 952, 965 (Fed. Cir. 2014). According to Patent Owner, the problems relating to the alleged long-felt need and failure of others are:

[T]he technologies that were available were unable to provide a network with high reliability and low latency that could handle a

large number of users across the country and connect them to broadcast channels using portal computers. Bims Decl. at ¶¶ 42–47. Accordingly, there was a need for a solution that would support the collaborative sharing of information simultaneously between a large number of wide-area network computers without causing significant delays in the sharing of information. *Id.* Boeing recognized that its solution might require the use of portal computers to locate these collaborative sharing networks and that the ports of the portal computers may be difficult to find. *Id.* Recognizing this need, the inventors devised a way to connect to such system without knowing the port number in advance. *Id.*

PO Resp. 53. Patent Owner does not explain how the problems relate to claim limitations at issue. For example, there are no claim limitations directed to scaling, large-scale collaboration, or latency. Moreover, Dr. Bims’s testimony, in support of the assertions made, is not commensurate in scope with the claimed invention. Rather, he opines that there was long-felt but unmet need for a network that could handle a large number of users and “connect them to broadcast channels using portal computers.” Ex. 2004 ¶ 44. The claims do not recite or require connecting users to broadcast channels using portal computers. And again, Dr. Bims’s testimony is based solely on his review of the inventors’ declaration and does not independently corroborate the existence of the long-felt need or failure of others. *See* Ex. 2004 ¶¶ 42–47.

Accordingly, we also find that insufficient nexus has been established between the alleged “long-felt need” and “failure of others” and the claimed invention. Consequently, we accord little weight to Patent Owner’s contentions relating to long-felt need and failure by others.

2. *Unexpected results*

Patent Owner relies on the three years it allegedly took the inventors to “identify a solution” as evidence of unexpected results. *See* PO Resp. 54 (citing Ex. 2006 ¶¶ 8–39). According to Patent Owner, “[t]his three-year period consisted of twenty-eight different epiphanies that were not readily apparent based on what was known in the art at that time.” *Id.* (citing Ex. 2004 ¶¶ 48–50; Ex. 2006 ¶¶ 8–39).

To begin with, we agree with Petitioner (Pet. Reply 24) that Patent Owner’s evidence of the difficulties in identifying a solution is not itself evidence of unexpected results. *See Proctor & Gamble Co. v. Teva Pharms. USA, Inc.*, 566 F.3d 989, 994 (Fed. Cir. 2009) (noting that unexpected results requires a showing of some *superior property or advantage* that a person of ordinary skill would have found *surprising or unexpected*).

Nevertheless, we have considered this testimony. We observe that most if not all of the inventors’ three-year development and twenty-eight “epiphanies” relate to developing unclaimed features of the system. *See, e.g.*, Ex. 2024 ¶¶ 10–16 (challenge associated with a 4-regular and 4-connected graph), ¶ 23 (challenge associated with nature of messages being shared); *see also* Ex. 2004 ¶¶ 48–50 (discussing inventor testimony). As such, this evidence does not support a conclusion of non-obviousness. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1562 (Fed. Cir. 1997) (noting evidence of lengthy development was related to unclaimed features). Patent Owner directs us to no evidence, for example, of any development issues relating to any of the claim limitations that Patent Owner contends would not have been obvious. We conclude, therefore, that insufficient nexus exists between the alleged “unexpected results” and the claimed

invention. For the foregoing reasons, we give little weight to Patent Owner's contentions relating to unexpected results.

3. *Licensing and commercial success*

Patent Owner contends that “the patented invention described in the ‘497 Patent gained commercial success through its successful licensing of the claimed invention to Sony.” PO Resp. 54–55 (citing Ex. 2004 ¶¶ 28–32, Ex. 2009). Patent Owner further contends that Sony's PlayStation is a commercial embodiment of the claimed invention of the ‘497 patent and that it has obtained increased sales as a result of products that practice the recitations of the challenged claims. *Id.* at 55–56 (citing 2004 ¶¶ 29–30; Ex. 2023 (chart mapping Sony product to licensed patents)).

We have considered Exhibit 2009, which purports to be a license agreement between Boeing Management Company and Sony Computer Entertainment for the ‘497 patent and related patents. *See* Ex. 2009, 1, 11 (“Attachment A”). We also have considered Dr. Bims's opinion that at least Sony PlayStation is a commercial embodiment of the ‘497 patent, as evidenced by his claim chart purportedly mapping claim 1 of the ‘497 patent to PlayStation 3 and PlayStation 4. *See* Ex. 2023.

We recognize that there is a presumption of nexus when the asserted objective evidence is tied to a specific product that is an embodiment of the claimed invention. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1329–31 (Fed. Cir. 2016). Secondary considerations evidence, however, must relate to the merits of the invention and not extrinsic factors, or features already known in the art. *In re Huai-Hung Kao*, 639 F.3d 1057, 1070 (Fed. Cir. 2011); *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1323 (Fed. Cir. 2006). Thus, “[a] nexus may not exist where, for example, the merits of the

claimed invention were readily available in the prior art.” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016) (internal quotation marks and citation omitted). Nonetheless, while a nexus may be lacking if the objective evidence “exclusively relates to a feature that was ‘known in the prior art,’ the obviousness inquiry centers on whether ‘the claimed invention as a whole’ would have been obvious.” *WBIP*, 829 F.3d at 1330 (quoting *Rambus, Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)).

Here, Patent Owner relies solely on a chart mapping the limitations of claim 1 to the Sony PlayStation. However, even if the Sony PlayStation products satisfy all the limitations of claim 1, which Petitioner disputes, we are not persuaded a nexus exists between the claimed invention and the license agreement. As explained above, the claimed invention as a whole, as recited in claim 1, is disclosed in the prior art *as a whole*, i.e., in Smart Clients, with or without Vahdat. In other words, “the merits of the claimed invention were ‘readily available in the prior art.’” *ClassCo*, 838 F.3d at 1220. Patent Owner does not direct us to any testimony or other evidence that suggests any limitations of the challenged dependent claims not disclosed in Smart Clients were embodied by the licensed product or that these features were important to the license. Thus, this case is distinguishable from *WBIP*, in which the Federal Circuit concluded a jury’s presumed factual findings relating to nexus were supported by substantial evidence when the merits of the invention involved a combination of prior elements that were known individually in the prior art. *WBIP*, 829 F.3d at 1331–32.

Patent Owner’s commercial success evidence suffers from the same deficiency because it also relates to the PlayStation products. *See Ex. 2004*

¶¶ 29–30. Consequently, there is no nexus between the alleged success and the merits of the invention.

For these reasons alone, we do not accord substantial weight to Patent Owner’s license and commercial success evidence.

Although we find Patent Owner’s evidence of nexus to be insufficient, we also have considered its “commercial success” based on Sony’s game division allegedly experiencing an increase of about 267 billion yen for the fiscal year ending March 31, 2008, and an increase in sales of PlayStation 3 from 5.63 million units to 9.24 million units over the same period. *Id.* at 55–56 (citing Ex. 2004 ¶ 32; Ex. 2032). Even assuming these numbers are accurate, a necessary component of the commercial success inquiry is determining market share associated with the alleged product, relative to competing products. *In re Applied Materials, Inc.*, 692 F.3d 1289, 1300 (Fed. Cir. 2012). Here, without market share, or a sense of the total market, we cannot evaluate the significance of the increased sales amounts. *See id.* at 1300 (“[T]he number of units sold without evidence of the market share is only weak evidence of commercial success.”). For example, we do not know whether PlayStation 3’s improvement in raw sales (an increase of 5.63 million units to a total of 9.24 million units) amounted to an increase in market share or whether the total market also increased proportionately.

Dr. Bims states that “[i]t is my opinion that the increase in sales were due in part because of Sony’s license to the ‘497 Patent. These sales are indicative of the commercial success of the inventions disclosed in the ‘497 Patent because Sony has utilized the invention in products that have been commercially successful.” Ex. 2004 ¶ 32. However, in the absence of further evidence, we find this reasoning to be conclusory as well as

circular.¹⁵ Thus, we give little weight to Patent Owner’s commercial success arguments for these additional reasons.

4. Industry praise

Patent Owner contends that there was industry praise for the ’497 patent as evidenced by Boeing’s initiative to identify internal technologies that had commercial potential, which selected SWAN (an alleged embodiment of the ’497 patent) as a leader in the portfolio of possible spin-out companies. PO Resp. 56 (citing, e.g., Ex. 2006 ¶ 40). Petitioner contends that Boeing’s own “self-referential commendation” of the technology does not demonstrate industry praise. Pet. Reply 25 (quoting *Bayer Healthcare Pharms. v. Watson Pharms.*, 713 F.3d 1369, 1377 (Fed. Cir. 2013)).

We agree with Petitioner. While “praise in the industry for a patented invention, and specifically praise from a competitor, tends to indicate that the invention would not have been obvious, *self-serving statements from researchers about their own work do not have the same reliability.*” *In re Cree*, 818 F.3d 694, 702 (Fed. Cir. 2016) (emphasis added) (agreeing that the Board was correct to discount self-recognition of inventor’s own work). Consequently, we do not consider Boeing’s effort to promote the work of its inventors as objective evidence of industry praise.

We have also considered Patent Owner’s contention that cites to the ’497 patent in “14 other patent applications” by well-known companies also represents praise. PO Resp. 56–57 (citing Ex. 2004 ¶¶ 39–41; Ex. 2027).

¹⁵ We also observe that Dr. Bims does not have any obvious qualifications as an economics expert (see Ex. 2004 ¶¶ 2–4 (describing graduate education in electrical engineering), Appendix A).

Patent Owner's declarant adds that "it is my opinion that the '497 Patent describes the process for contacting a broadcast channel technology" and "citation of the '497 Patent by companies in the gaming industry demonstrates that the gaming industry appreciates the significance of the invention described in the '497 Patent." Ex. 2004 ¶¶ 39–40.

We do not find this evidence persuasive of praise. First, Patent Owner's reliance on "bare . . . citations" to the '497 patent by other patents is not suggestive of true praise. *See Bayer Healthcare*, 713 F.3d at 1377 (finding that brief discussions of Patent Owner's product in journal articles "fall well short of demonstrating true industry praise"). Second, Dr. Bims's statements that the '497 patent describes what is now termed "a process for contacting a broadcast channel" and "the gaming industry appreciates the significance of the invention" rely solely on the same list of bare citations. As such, they are unsupported and conclusory. Accordingly, we give little weight to Patent Owner's contentions relating to industry praise.

5. Copying

According to Patent Owner, "Petitioner's products are embodiments of the patented invention described in the '497 Patent." PO Resp. 57. In support, Patent Owner cites Dr. Bims's declaration and Exhibits 2024, 2025, and 2026, which Dr. Bims represents as "infringement contentions filed in the parallel district court proceedings." Ex. 2004 ¶¶ 34–38. We find this evidence to be insufficient to establishing copying.

"[Federal Circuit] case law holds that *copying requires evidence of efforts to replicate a specific product*, which may be demonstrated through internal company documents, direct evidence such as disassembling a patented prototype, photographing its features, and using the photograph as a

blueprint to build a replica, *or access to the patented product combined with substantial similarity to the patented product.*” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) (emphasis added). On the other hand, reliance solely on infringement contentions is insufficient to demonstrate copying because “otherwise, every infringement suit would automatically confirm the nonobviousness of the patent.” *Id.* (internal quotations and citations omitted). Here, in his declaration, Dr. Bims cites the entirety of Patent Owner’s lengthy infringement contentions as evidence of copying and provides the same undifferentiated statement for each of the accused products that “these games have certain modes that allow individual players from various locations to communicate with each other over a computer network through a portal computer.” *See* Ex. 2004 ¶¶ 35–37. Dr. Bims does not cite specific evidence, for example, of similarities between the accused product and Patent Owner’s product that would tend to show copying. Accordingly, we give little weight to Patent Owner’s contentions relating to copying.

Legal Conclusion of Obviousness

We have considered the entirety of the evidence before us, including the evidence of obviousness and the evidence submitted by Patent Owner as indicia of nonobviousness. On balance, the evidence of obviousness outweighs the evidence of nonobviousness, with respect to the challenged claims. The evidence of obviousness is strong and the evidence of nonobviousness is weak, for the reasons discussed above. All of Patent Owner’s arguments have been considered. Petitioner has proved, by a preponderance of the evidence that claims 1 and 7 are unpatentable over Smart Clients with or without Vahdat; claims 3–5 are unpatentable over the

combination of Smart Clients, ONE-IP, and Karger, with or without Vahdat; and claim 8 is unpatentable over Smart Clients, Naugle, with or without Vahdat.

H. Patent Owner's Motion to Exclude

Patent Owner moves to exclude Exhibits 1003, 1007, 1021, 1022, and 1024 and portions of Petitioner's Reply that rely on Exhibit 1024. PO Mot. Exc. Exhibit 1003 is a declaration of Dr. Karger. Patent Owner argues that we should exclude Dr. Karger's declaration under FRE 702, because his opinions are conclusory, do not disclose underlying facts or data in support of his opinions, and are unreliable. *Id.* at 4–5. Patent Owner's sole basis for making these assertions is that "Dr. Karger failed to consider secondary considerations in forming his obviousness analysis and on this basis alone, his declaration should be excluded." *Id.* In essence, Patent Owner contends that we should give little or no weight to Dr. Karger's testimony because he did not discuss secondary considerations. As discussed above in connection with footnote 11, Patent Owner makes this same argument in its Patent Owner Response, which we do not find persuasive for reasons provided. Moreover, the amount of weight we should give evidence is not the proper subject matter of a motion to exclude evidence under the Federal Rules of Evidence. For all of these reasons, we dismiss Patent Owner's request to exclude Exhibit 1003.

Exhibit 1007 is a copy of Vahdat submitted into evidence by Petitioner. Patent Owner contends Exhibit 1007 (Vahdat) should be excluded as unauthenticated, hearsay, and irrelevant. PO Mot. Exc. 5–7 (citing FRE 901, 801–803, 401–403). However, Patent Owner's contentions are substantially the same as those raised above regarding Vahdat's status as

a publicly available reference (*see supra* §§ II.D.1). Because we determine above that Vahdat was authenticated by a credible witness (i.e., Dr. Anderson) with personal knowledge of the time and circumstances of its public availability (*see id.*), Patent Owner's motion is denied as to Exhibit 1007.

Exhibit 1021 and Exhibit 1022 are hand drawn figures presented to Dr. Goodrich during his cross examination. *See, e.g.*, Pet. Reply vi. Patent Owner seeks to exclude Exhibits 1021 and 1022. Exhibit 1021 was not relied on in connection with Petitioner's Reply. Moreover, we did not rely on Exhibit 1022 in rendering our decision. We did not and need not consider Exhibits 1021 and 1022. We have determined that Petitioner has demonstrated, by a preponderance of the evidence, that the challenged claims are unpatentable, without considering the specific objected to evidence or the portion of Petitioner's Reply that relies on such evidence and thus dismiss that portion of the motion seeking to exclude Exhibits 1021 and 1022.

Exhibit 1024 is a copy of U.S. Patent 5,829,033. Petitioner relied on Exhibit 1024 in connection with its argument in its Reply that "cache coherence" uses a broadcast technique. *See, e.g.*, Pet. Reply 14. We have determined that Petitioner has demonstrated, by a preponderance of the evidence, that the challenged claims are unpatentable, without considering the specific objected to evidence or the portion of Petitioner's Reply (at 14) that relies on such evidence and thus dismiss that portion of the motion seeking to exclude Exhibit 1024. Although Patent Owner argues that we should also exclude 2:8–3:9, 3:16–4:3, 11:9–13 of Petitioner's Reply that ostensibly relies on Exhibit 1024, those cited portions of Petitioner's Reply

do not cite Exhibit 1024 or discuss that exhibit in any way. *See* PO Mot. Exc. 3. Patent Owner provides no other explanation as to why we should exclude 2:8–3:9, 3:16–4:3, 11:9–13 of Petitioner’s Reply, and, thus, fails to explain sufficiently why it is entitled to the requested relief. We deny Patent Owner’s request to exclude 2:8–3:9, 3:16–4:3, 11:9–13 of Petitioner’s Reply.

Accordingly, we *dismiss-in-part* and *deny-in-part* Patent Owner’s Motion to Exclude.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 7 are unpatentable over Smart Clients with or without Vahdat; claims 3–5 are unpatentable over the combination of Smart Clients, ONE-IP, and Karger, with or without Vahdat; and claim 8 is unpatentable over Smart Clients, Naugle, with or without Vahdat.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1, 3–5, 7, and 8 of the ’497 patent have been shown to be unpatentable;

FURTHER ORDERED that Patent Owner’s Motion to Exclude is *dismissed-in-part* and *denied-in-part*; 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.

IPR2016-00724
Patent 6,920,497 B1

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