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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SYMANTEC CORP. and
BLUE COAT SYSTEMS LLC,
Petitioner,

v.

FINJAN, INC.,
Patent Owner.

Case IPR2015-01892[1]
Patent 8,677,494 B2

Before ZHENYU YANG, CHARLES J. BOUDREAU, and SHEILA F. McSHANE, *Administrative Patent Judges*.

BOUDREAU, *Administrative Patent Judge*.

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

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[1] Case IPR2016-00890 has been joined with the instant proceeding.

I. INTRODUCTION

Symantec Corp. and Blue Coat Systems, Inc., now known as Blue Coat Systems LLC,[2] (collectively, "Petitioner") filed petitions requesting *inter partes* review of claims 1, 2, 5, 6, 10, 11, 14, and 15 of U.S. Patent No. 8,677,494 B2 (Ex. 1001, "the '494 patent"). Paper 1 ("Petition" or "Pet."); *see also* IPR2016-00890, Paper 2.

Based on the information provided in the Petition, and in consideration of the Preliminary Response (Paper 7) of Patent Owner, Finjan, Inc., we instituted a trial pursuant to 35 U.S.C. § 314(a) with respect to claims 1, 2, 5, 6, 10, 11, 14, and 15 and subsequently joined Case IPR2016-00890 with the instant case. Paper 9 ("Decision on Institution" or "Dec. on Inst."); *see also* Paper 30 (copy of decision instituting *inter partes* review in Case IPR2016-00890 and granting motion for joinder; also filed as IPR2016-00890, Paper 8).

After institution, Patent Owner filed a Partial Request for Rehearing Pursuant to 37 C.F.R. §§ 42.71(c) and 42.71(d) (Paper 13), challenging our decision to institute trial, and we issued a Decision Denying Patent Owner's Request for Rehearing (Paper 21, "Rehearing Decision" or "Reh'g Dec."). Thereafter, Patent Owner filed a Response (Paper 27 ("PO Resp.")), and Petitioner filed a Reply (Paper 31, "Pet. Reply"). Petitioner proffered Declarations of Sylvia Hall-Ellis, Ph.D. (Ex. 1006) and Jack W. Davidson, Ph.D. (Ex. 1018) with its Petition; and a Reply Declaration of Dr. Davidson (Ex. 1027), a Supplemental Declaration of Dr. Hall-Ellis (Ex. 1037), and Declarations of Richard Ford, D.Phil. (Ex. 1038) and Joseph

[2] *See* Paper 54, 1.

Kiegel (Ex. 1041) with its Reply. Patent Owner proffered Declarations of Nenad Medvidovic, Ph.D. (Ex. 2007) and S.H. Michael Kim (Ex. 2010) with its Response. Also, deposition transcripts were filed for Dr. Medvidovic (Ex. 1034), Dr. Hall-Ellis (Ex. 2011), and Dr. Davidson (Ex. 2012).

Patent Owner moves to exclude certain of Petitioner's Exhibits, including each of the Declarations proffered with the Reply. Paper 41. Petitioner filed an Opposition (Paper 48) to the motion, and Patent Owner filed a reply (Paper 51).

Patent Owner also filed an identification of arguments alleged to exceed the proper scope of Petitioner's Reply (Paper 39), to which Petitioner filed a response (Paper 46). Patent Owner further filed a Motion for Observations on Testimony of Dr. Davidson (Paper 42), and Petitioner filed a response thereto (Paper 47).

An oral hearing was held on December 16, 2016; a transcript of the hearing is included in the record (Paper 56, "Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, and 6 of the '494 patent are unpatentable.

We also deny-in-part and dismiss-in-part Patent Owner's Motion to Exclude.

II. BACKGROUND

A. Related Proceedings

The parties identify six district court actions involving the '494 patent: *Finjan, Inc. v. Sophos, Inc.*, No. 3:14-cv-01197 (N.D. Cal. 2014) ("the

Sophos litigation"), *Finjan v. Websense, Inc.*, No. 14-cv-01353 (N.D. Cal. 2014), *Finjan, Inc. v. Symantec Corp.*, No. 3:14-cv-02998 (N.D. Cal. 2014), *Finjan, Inc. v. Palo Alto Networks, Inc.*, No. 3:14-cv-04908 (N.D. Cal. 2014), *Finjan, Inc. v. Blue Coat Systems, Inc.*, No. 5:15-cv-03295 (N.D. Cal. 2015), and *Finjan, Inc. v. Cisco Systems Inc.*, No. 17-cv-00072 (N.D. Cal. 2017). Pet. 1; Paper 6, 1; PO Resp. 57; Paper 54, 1.

The '494 patent is also the subject of an *inter partes* review in *Palo Alto Networks, Inc. v. Finjan, Inc.*, Case IPR2016-00159, to which *Blue Coat Systems, Inc. v. Finjan, Inc.*, Case IPR2016-01174, has been joined; and was the subject of denied petitions for *inter partes* review in *Sophos Inc. v. Finjan, Inc.*, Case IPR2015-01022, *Symantec Corp. v. Finjan, Inc.*, Case IPR2015-01897, and *Blue Coat Systems, Inc. v. Finjan, Inc.*, Case IPR2016-01443.

B. The '494 Patent

The '494 patent, entitled "Malicious Mobile Code Runtime Monitoring System and Methods," issued March 18, 2014, from U.S. Patent Application No. 13/290,708 ("the '708 application"), filed November 7, 2011. Ex. 1001, [21], [22], [45], [54]. On its face, the '494 patent purports to claim priority from nine earlier applications: (1) U.S. Provisional Application No. 60/030,639 ("the '639 provisional"), filed November 8, 1996; (2) U.S. Patent Application No. 08/790,097, filed January 29, 1997, and issued as U.S. Patent No. 6,167,520 ("the '520 patent"); (3) U.S. Patent Application No. 08/964,388 ("the '388 application"), filed November 6, 1997, and issued as U.S. Patent No. 6,092,194 (Ex. 1013, "the '194 patent"); (4) U.S. Patent Application No. 09/539,667, filed March 30, 2000, and issued as U.S. Patent No. 6,804,780 (Ex. 2028, "the '780 patent");

(5) U.S. Patent Application No. 09/551,302, filed April 18, 2000;
(6) U.S. Provisional Patent Application No. 60/205,591, filed May 17, 2000;
(7) U.S. Patent Application No. 09/861,229, filed May 17, 2001;
(8) U.S. Patent Application No. 11/370,114 ("the '114 application"), filed March 7, 2006; and (9) U.S. Patent Application No. 12/471,942, filed May 26, 2009. Ex. 1001, [63]. In our Decision on Institution in Case IPR2016-00159, we determined on the record then before us in that case that the '494 patent is not entitled to an earlier priority date than the November 6, 1997, filing date of the '388 application, due to the failure of the intermediate '114 application to include priority claims either to the '639 provisional or to the '097 application. *See* IPR2016-00159, slip op. at 10–13 (PTAB May 13, 2016) (Paper 8). That determination does not affect any of our conclusions in this case.

The '494 patent describes protection systems and methods "capable of protecting a personal computer ('PC') or other persistently or even intermittently network accessible devices or processes from harmful, undesirable, suspicious or other 'malicious' operations that might otherwise be effectuated by remotely operable code." Ex. 1001, 2:51–56. "Remotely operable code that is protectable against can include," for example, "downloadable application programs, Trojan horses and program code groupings, as well as software 'components', such as Java™ applets, ActiveX™ controls, JavaScript™/Visual Basic scripts, add-ins, etc., among others." *Id.* at 2:59–64.

C. Illustrative Challenged Claims

Of the challenged claims, claims 1 and 10 are independent. Those claims are illustrative and are reproduced below:

1. A computer-based method, comprising the steps of:

receiving an incoming Downloadable;

deriving security profile data for the Downloadable, including a list of suspicious computer operations that may be attempted by the Downloadable; and

storing the Downloadable security profile data in a database.

10. A system for managing Downloadables, comprising:

a receiver for receiving an incoming Downloadable;

a Downloadable scanner coupled with said receiver, for deriving security profile data for the Downloadable, including a list of suspicious computer operations that may be attempted by the Downloadable; and

a database manager coupled with said Downloadable scanner, for storing the Downloadable security profile data in a database.

Ex. 1001, 21:19–25, 22:7–16. Each of challenged claims 2, 5, and 6 depends directly from claim 1; and each of challenged claims 11, 14, and 15 depends directly from claim 10. *Id.* at 21:26–28, 21:33–37, 22:17–20, 22:26–30.

D. Instituted Ground of Unpatentability

The Petition asserted five grounds of unpatentability. Pet. 5. We instituted trial in this case only on the asserted ground that claims 1, 2, 5, 6, 10, 11, 14, and 15 of the ’494 patent are unpatentable under 35 U.S.C. § 103 over Morton Swimmer et al., *Dynamic Detection and Classification of*

Computer Viruses Using General Behaviour Patterns, Virus Bull. Conf. 75 (Sept. 1995) (Ex. 1005, "Swimmer"). Dec. on Inst. 34.

III. ANALYSIS

A. Claim Construction

The '494 patent expired no later than January 29, 2017. *See* Paper 55, 1 (Patent Owner representing that January 29, 2017, was the expiration date of the '494 patent and that Petitioner does not dispute that date). In an *inter partes* review, we construe claims of an expired patent according to the standard applied by the district courts. *See In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012). Specifically, because the expired claims of a patent are not subject to amendment, we apply the principles set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). Under that standard, the words of a claim are generally given their ordinary and customary meaning, which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See Phillips*, 415 F.3d at 1312–13. Only those terms 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).

For purposes of this Decision, we address three claim terms and phrases, each of which is recited in both independent claims 1 and 10: (1) "list of suspicious computer operations"; (2) "database"; and (3) "storing the Downloadable security profile data in a database."

1. "list of suspicious computer operations"

Neither party identified "list of suspicious computer operations" as requiring construction prior to institution, and we did not provide an express construction of that phrase in the Decision on Institution. In the Decision on Institution, we were persuaded, however, by Petitioner's contentions that the DOS functions corresponding to the "function numbers" included in Swimmer's audit trail include the same types of operations referred to by applications related to the '494 patent as examples of "suspicious operations," including the four specific types of operations that are recited as "suspicious computer operations" in challenged dependent claims 6 and 15. Dec. on Inst. 22 (citing Pet. 17–18, 21–22).

In the Patent Owner Response, Patent Owner contends "[a] 'list of suspicious computer operations' is properly construed as 'a list of computer operations deemed suspicious'" (PO Resp. 10). According to Patent Owner, "[t]he '494 Patent requires this construction, specifically that the operations are *deemed* to be suspicious." *Id.* "For example," Patent Owner contends, "the '194 Patent, which is incorporated by reference into the '494 Patent, explains how generating the 'list of suspicious computer operations' first requires that a determination be made as to whether the operations to be listed are suspicious." *Id.* (citing Ex. 1013, 9:20–42, Fig. 7; Ex. 2007 ¶¶ 47–48, 65). Patent Owner further contends that Petitioner's argument that DOS function numbers identified by Swimmer correspond to the same types of operations identified in one related application (i.e., the '639 provisional, Ex. 1002) is both factually incorrect, in that the cited portion of the '639 provisional "relates to '***fundamental computer operations***,' not "suspicious computer operations[']" (*Id.* at 10–11 (citing Ex. 1002, 18:9–13)), and

contrary to the law, in "relying on knowledge gleaned from the '494 Patent itself—namely the insight to deem some subset of 'calls made to an operating system, a file system, a network system, and to memory' as suspicious in deriving a list of the suspicious computer operations that may be attempted by a Downloadable" (*id.* at 11).

Regarding the first point, Patent Owner points out that certain disclosure in the '194 patent "actually relates to '***suspicious computer operations***,'" providing "An ***Example*** List of Operations Deemed Potentially Hostile." *Id.* (citing Ex. 1013, 5:50–54; quoting Ex. 1013, 5:58–6:4 (emphasis added by Patent Owner)). Patent Owner contends this "mean[s] that there is no *a priori* understanding of what constitutes a 'suspicious computer operation,'" but "[r]ather, some subset of all possible computer operations must first be deemed suspicious in order to derive a list of suspicious computer operations for a Downloadable." *Id.* (citing Ex. 1013, 5:58–6:4, 9:20–42, Fig. 7). Regarding the second point, Patent Owner argues, "in assessing obviousness Petitioner may consider 'only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made,' but may not consider the claimed invention itself." *Id.* at 11–12 (quoting *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971)). Finally, Patent Owner contends "the Board appears to have misunderstood how dependent claims 6 and 15 limit claims 1 and 10, respectively," as "claims 6 and 15 do not ***equate all*** 'calls made to an operating system, a file system, a network system, and to memory' with suspicious computer operations . . . ." *Id.* at 12 (citing Dec. on Inst. 22). Rather, Patent Owner contends, "a person of ordinary skill in the art would understand these claims to require that certain 'calls made to an operating system, a file

system, a network system, and to memory' be among those computer operations that have been deemed 'suspicious.'" *Id.* (citing Ex. 2007 ¶¶ 69, 97).

Petitioner replies that the phrase "list of suspicious computer operations" should be given its plain and ordinary meaning consistent with the specification of the '494 patent, which, Petitioner asserts, is "a list including one or more types of computer operations that could be used by the Downloadable in a potentially hostile or undesirable manner (e.g., operating system, file system, or memory operations)." Pet. Reply 5 (citing Ex. 1013, 3:17–21, 5:58–6:4). Petitioner contends that the '194 patent, incorporated by reference in the '494 patent, "explains that examples of 'suspicious' operations include file system operations (*e.g.*, reading and writing files), OS [operating system] operations, and registry, network, and memory operations" (*id.* (citing Ex. 1013, 5:57–6:4)), and "[i]n turn, the system determines whether an operation in a Downloadable is 'suspicious' simply by determining 'whether [it] is one of the operations identified in the list described above' (*i.e.*, at [Ex. 1013,] 5:57–6:4)" (*id.* (quoting Ex. 1013, 9:20–42)). Petitioner also relies on the testimony of Dr. Davidson as explaining that a person of ordinary skill in the art would have appreciated that these were the types of computer operations used by viruses to do harm. *Id.* at 5–6 (citing Ex. 1018 ¶¶ 75–81, 97–100). According to Petitioner, Patent Owner's construction, which "merely rearranges the claim language and inserts the word 'deemed,'" is both unhelpful and unreasonably narrow because it reads an additional "deeming" step into the claims. *Id.* at 6. Petitioner contends Patent Owner's position that such a step is required is "directly contradicted by the '194 patent," which, Petitioner contends,

"makes clear that an operation is 'suspicious' merely because it is a type of operation that could be used in a potentially hostile manner (*e.g.*, file system operations)" by "stat[ing] that [Downloadable security profile ("DSP")] data may include 'a list of ***all operations*** in the Downloadable code which ***could ever*** be deemed potentially hostile.'" *Id.* at 7 (quoting Ex. 1013, 5:51–59 (emphasis added by Petitioner)). In other words, Petitioner contends, "at the time an operation is included in the list, there has been no determination yet of whether that particular operation is actually being used in a potentially hostile or 'suspicious' manner." *Id.* (citing Ex. 1018 ¶¶ 91–96).

We agree with Petitioner that Patent Owner's proposed construction is unhelpful to an understanding of the scope of the challenged claims insofar as it "merely rearranges the claim language and inserts the word 'deemed'" (Pet. Reply 6). More helpful is the portion of the '194 patent cited by Petitioner that explains that DSP data may include "a list of *all* operations in the Downloadable code *which could ever be deemed* potentially hostile." Ex. 1013, 5:51–53 (emphasis added)). The inclusion of the phraseology "all operations . . . which could ever be deemed potentially hostile" in that passage renders it more objective, and "potentially hostile" captures our understanding of the meaning of "suspicious" in the context of the claims in light of the intrinsic and extrinsic evidence of record. Indeed, column 9, lines 20–42, of the '194 patent, cited by Patent Owner in support of its assertion that "generating the 'list of suspicious computer operations' first requires that a determination be made as to whether the operations to be listed are suspicious" (*see* PO Resp. 10), directly links the term "suspicious" with "the list described above with reference to FIG. 3"—i.e., the "list of all

operations in the Downloadable code which could ever be deemed potentially hostile."

Because we determine that column 5, line 50, to column 6, line 4, of the '194 patent, incorporated by reference into the '494 patent (see Ex. 1001, 1:35–38), provides the most probative evidence on the record before us as to the meaning of "list of suspicious computer operations" as recited in the challenged claims, we conclude that phrase is properly construed as a "list of all operations that could ever be deemed potentially hostile," non-limiting examples of which includes file operations; network operations; registry operations; operating systems operations; resource usage threshold operations, memory operations, CPU operations, and graphics operations. Ex. 1013, 5:50–6:4.

Notwithstanding our conclusion regarding the proper construction of "list of suspicious computer operations," however, as we discuss in greater detail, *infra* Section III.B.4.a.iii, our ultimate conclusions in this proceeding do not turn on our adoption of this construction, Patent Owner's proposed construction, or Petitioner's proposed construction.

2. "database"

In the Decision on Institution, in view of competing constructions advanced in the Petition and the Preliminary Response, we construed the term "database" as "a collection of interrelated data organized according to a database schema to serve one or more applications." Dec. on Inst. 7–11. As we explained, we agreed with Patent Owner that that construction, which was previously articulated by the district court in the *Sophos* litigation and applied by the Board in prior proceedings, represented the broadest reasonable interpretation in light of the claim language and the specification

of the ’494 patent. *Id.* at 10; *see* Ex. 2002, 7 (*Finjan, Inc. v. Sophos, Inc.*, No. 14-cv-01197 (N.D. Cal. 2014), Claim Construction Order at 7); Ex. 2003, 8–10 (*Sophos, Inc. v. Finjan, Inc.*, Case IPR2015-00907, slip op. at 8–10 (Paper 8) (concerning related U.S. Patent No. 7,613,926)); Ex. 2004, 9–10 (*Sophos, Inc. v. Finjan, Inc.*, Case IPR2015-01022, slip op. at 9–10 (Paper 7) (concerning the ’494 patent)).

Neither Petitioner nor Patent Owner challenges that construction, per se, post-institution. Patent Owner contends, however, that “*[t]he practical import* of this construction excludes log files from being databases.” PO Resp. 7 (emphasis added). In support of its contention, Patent Owner asserts that the district court explained in the claim construction order in the *Sophos* litigation that “the term ‘database’ is not broad enough to include a log file.” *Id.* (quoting Ex. 2002, 7). According to Patent Owner, the district court “based its reasoning of the intrinsic record which demonstrates that databases and log files are separate and distinct entities.” *Id.* “For example,” Patent Owner alleges, “the specification designates the database that stores DSP with box ‘Security Database 240’ while an event log is designated with box ‘Event Log 245,’” and “[t]he ’494 Patent further describes how databases and log files function differently by describing how logging results in an event log is an action that is distinct from storing in a security database.” *Id.* at 7–8 (reproducing Ex. 1013, Fig. 2; citing Ex. 1013, 7:2–6); *see also id.* at 8 (reproducing and referring to Ex. 1013, Fig. 3, as allegedly illustrating that “[t]his logging functionality is distinct from storing in a database, which allows DSP to be efficiently retrieved from the database, as shown by the bidirectional arrow between the DSP data 310 stored within Security Database 240 and Code Scanner 325 as compared to

the arrow from logical engine 333 to record-keeping engine 335 to event log 245"), 9 ("The data storage device 230 stores a security database 240, which includes security information for determining whether a received Downloadable is to be deemed suspicious." (quoting Ex. 1013, 3:47–50)). Patent Owner concludes, "[b]ecause the District Court's holding is based on sound reasoning, it should generally be followed in these proceedings." *Id.* at 9.

Petitioner "maintain[s] this is not the broadest reasonable interpretation of 'database,' but adopt[s] the Board's construction solely for purposes of this IPR." Pet. Reply 2 n.2. Petitioner additionally takes issue with Patent Owner's assertion, among others, that the database cannot be a log file. *Id.* at 2–5.

We note that despite Patent Owner's assertions regarding what "the specification designates" and what "the '494 Patent further describes" (*see* PO Resp. 7–8), the citations and figures reproduced by Patent Owner in support of those assertions are not from the '494 patent, but instead are from the ancestral '194 patent. Although the '494 patent incorporates by reference the '194 patent, among other patents and applications (*see supra* Section II.B), the '494 patent includes different versions of the cited figures and different descriptions thereof. Further, despite Patent Owner's bookending of those figures, citations, and quotations from the '194 patent with arguments regarding the district court's claim construction order in the *Sophos* litigation, we find that that order did not refer to the '194 patent. *See* Ex. 2002.

Nonetheless, we agree that the district court found that the parties' disagreement in the *Sophos* litigation "center[ed] on whether 'database'

includes 'simple files such as a log file,'" where, "[a]ccording to Finjan, a log file is unstructured collection of data on a computer," and explained that "database" should be construed, in part, "because the parties dispute the categorization of 'log file' as a 'database.'" *Id.* at 4. The court found, based on references to a "database" in the '494 patent itself, that "a database is used as an information source that serves protection engines when they inspect Downloadables." *Id.* at 5–6. The court also found that the related '780 patent "reflects the same understanding of database in its reference to a 'security database,'" and separately "refers to an 'event log,' stating that it 'includes determination results for each Downloadable examined and runtime indications of the internal network security system." *Id.* at 6 (quoting Ex. 2028, 3:62–64). The court concluded:

> The patent's language and context supports Finjan's definition of a database. The specifications illustrate that a "database" serves applications, a characteristic that is not included in Sophos's definition. The fact that a database assists applications also undermines Sophos's argument that a log file is a database, because a log file is more properly understood as a passive record, instead of a storage device that interacts with an application. The '780 patent also differentiates between log files and "databases" by referring to them separately.
>
> In addition, Finjan's expert, Nenad Medvidovic, states that a person of ordinary skill in the art would understand "database" to mean "a collection of interrelated data organized according to a database schema to serve one or more applications." [Dr.] Medvidovic further states that "[a] person would understand a simple log file is not a database because it is not structured like a database . . . A database, on the other hand, is a structured software component that allows user and other software components to store and retrieve data in an efficient manner." . . . [Dr.] Medvidovic's definition appears reasonable when compared to the language of the patent and the definitions from computing dictionaries such as the IBM Dictionary of

> Computing and the IEEE Standard Dictionary of Electrical and Electronics Terms.
>
> . . . .
>
> I am persuaded by Finjan's assertion that "[t]he claim language of the asserted patents all relate to the storage of data within the database in the context of the security profile or the downloadable security profile. The system actively uses these security profiles to detect malware and manage the system, not just for archival storage." Therefore, I find that a log file does not qualify as a database in the context of this patent. Because Finjan's definition appears to reflect both the context of the patent as well as a well-accepted definition of the term, I adopt Finjan's construction of "database."

Id. at 6–7 (internal citations omitted).

Although our construction of the term "database" in the Decision on Institution was rendered under the "broadest reasonable interpretation" standard applicable to unexpired patents (*see* 37 C.F.R. § 42.100(b)), we conclude, in view of the parties' arguments and cited evidence, and having considered the district court's explanation set forth in the claim construction order in the *Sophos* litigation, that there is no reason to modify our construction of "database" set forth in the Decision on Institution, which mirrors the district court's express construction. Accordingly, we again construe "database" as "a collection of interrelated data organized according to a database schema to serve one or more applications." To the extent that construction would exclude a log file consisting of an "unstructured collection of data on a computer," we agree for the reasons articulated by the district court that such a simple, unstructured log file would not be a database. *See* Ex. 2002, 4–7. However, we do not agree with Patent Owner's suggestion that this construction necessarily excludes *all* log files from being databases. *See infra* Section III.B.4.a.iv. In particular, we credit

Dr. Davidson's deposition testimony that the word "log" refers to the *kind* of data that is stored in a file, not to the file's format or organization, and that a log file can, therefore, be considered a database "if it's organized in a fashion . . . for a database, which it's an interrelated collection of data organized according to the scheme of serving one or more applications." Ex. 2041, 50:8–51:1; *see also id.* at 52:2–10 ("Q. So a log file would be considered a database, correct? A. Again, it depends on how it's organized whether it would be considered a database. . . . [I]t's not like it's one or the other. It could be both."). In contrast, we understand the district court's stated exclusion of "log files" from the construction of "database" to have been based on a fundamentally different interpretation of "log file" than Dr. Davidson's, informed by Patent Owner's representation in the district court litigation that a log file is an "unstructured collection of data." *See* Ex. 2002, 4:20–21. In view of the clear disconnection between Dr. Davidson's and the district court's interpretations of the term "log file," we disagree with Patent Owner's contentions that "[t]he practical import" of our construction is to exclude log files from being databases (*see* PO Resp. 7) and that Dr. Davidson's "admission" that Swimmer's audit trail is a database "is decisive" (*id.* at 9).

3. "storing the Downloadable security profile data in a database"

Neither party identified "storing the Downloadable security profile data in a database" as requiring construction prior to institution, and we did not provide an express construction of that phrase in the Decision on Institution. In the Patent Owner Response, Patent Owner contends that the phrase "storing the Downloadable security profile data in a database" is properly construed as "placing the derived DSP data into the database." PO

Resp. 13. More particularly, according to Patent Owner, a person of ordinary skill in the art would understand the term "storing" to mean "to place in storage" (*id.* at 13 (citing Ex. 2007 ¶ 71; Ex. 2027 (IBM Dictionary of Computing, 10th Ed.), 653)), and that understanding is "also reflected by how the specification[3] describes storing in a database, namely by placing DSP data 310 into Security Database 240" (*id.* (citing Ex. 1013, Fig. 3)). "In contrast," Patent Owner speculates, Petitioner "equates storing to converting." *Id.* at 14. According to Patent Owner, this is necessarily the case "because 'storing' is an action that is never used in describing Swimmer's audit trail." *Id.* Patent Owner contends that "reading 'storing' so broadly that it includes 'converting' is completely at odds with the understanding of one of skill in the art at the time and does not reasonably reflect the disclosure of the '494 Patent." *Id.* at 15. Patent Owner also contends that construction of this phrase is "necessary in order to avoid Petitioner's conflation of claim terms." *Id.* In particular, Patent Owner asserts, "Petitioner seeks to map Swimmer's generation of an audit trail to both the claimed 'deriving DSP data' and 'storing the DSP data in a database'" (*id.* (citing Pet. 16–20; Dec. on Inst. 16, 23)), thereby improperly reading the "storing . . . in a database" limitation out of the claim (*id.* at 15–16). According to Patent Owner, "the unequivocal disclosure in the '494 Patent and Petitioner's misleading attempt to conflate claim terms" require that Patent Owner's construction be adopted "to make clear that 'deriving DSP data' is separate from 'storing the DSP data in a database,' and that the

[3] As with its references to "the specification" in connection with the term "database," Patent Owner's reference to "the specification" here is not to the '494 patent itself, but instead to the related '194 patent.

DSP data is only placed in the database upon derivation of the profile, including the list of suspicious computer operations." *Id.* at 16.

Petitioner replies that the phrase needs no further construction and should be given its plain and ordinary meaning, namely, "that the DSP data is stored in a database." Pet. Reply 7. Petitioner contends that "[t]he term 'storing' is extremely well-known in the context of computer systems," and that there is no dispute that the '494 patent uses that term consistent with its ordinary meaning. *Id.* at 7–8 (citing Ex. 1018 ¶¶ 8–9; Ex. 1034 (Medvidovic Deposition Transcript), 97:4–9). According to Petitioner, Patent Owner's construction, which "does nothing more than replace the claim term 'storing' with the word 'placing' . . . is, at best, unnecessary, and in fact, creates ambiguity as to what 'placing' data 'into' a database means." *Id.* (citing Ex. 1034, 98:6–99:8). Contrary to Patent Owner's arguments, Petitioner further contends, it did not equate storing with "converting" or rely on Swimmer's discussion of converting files as the basis for teaching the claimed 'storing' step." *Id.* at 8. Lastly, Petitioner contends that Patent Owner's argument that DSP data is only placed in the database upon derivation of the security profile is incorrect to the extent that Patent Owner is arguing that the "entire" security profile must be derived before placing any of the DSP data into the database. *Id.* at 8–9 (citing PO Resp. 15–16, 46–47).

We agree with Petitioner that express construction of this phrase is unnecessary. The claim language already makes clear that DSP data must be stored in a database, and Patent Owner's proposed replacement of "storing" with "placing" does not add any further clarity to the already clear claim language. We also agree with Petitioner that, although the "deriving" and

"storing" steps of claim 1 are separate steps, the claims do not require that the "entire" security profile must be derived before placing any of the DSP data into the database. *See* Pet. Reply 9. As Petitioner points out, "[t]he claims expressly recite deriving and storing DSP ***data*** – not deriving and storing the entire security profile for the Downloadable." *Id.*

B. Obviousness over Swimmer

We have reviewed the Petition, Patent Owner Response, and Petitioner's Reply, as well as the relevant evidence discussed therein. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, and 6 of the '494 patent are unpatentable under 35 U.S.C. § 103(a) over Swimmer.

1. Principles of Law

A patent 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 the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations such as commercial success, long felt but unsolved needs, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To prevail in an *inter partes* review, a petitioner must prove the unpatentability of the challenged claims by a preponderance of the evidence.

35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). "[T]he petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). The burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze the instituted ground of unpatentability in accordance with the above-stated principles.

2. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, 35 U.S.C. § 103 requires us to resolve the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. "The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry." *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in

the field. *Id.* In a given case, one or more factors may predominate. *Id.* Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) ("A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.").

Petitioner's declarant, Dr. Davidson, opines that a person of ordinary skill in the art at the time of the '494 patent would have had a master's degree in computer science, computer engineering, or a similar field, or a Bachelor's degree in computer science, computer engineering, or a similar field, with approximately two years of industry experience relating to computer security. Ex. 1018 ¶ 30. According to Dr. Davidson, "[a]dditional graduate education might substitute for experience, while significant experience in the field of computer programming and malicious code might substitute for formal education." *Id.*

Patent Owner's declarant, Dr. Medvidovic, opines that the person of ordinary skill in the art in the field of the '494 patent would be someone with a bachelor's degree in computer science or a related field and "either (1) two or more years of industry experience and/or (2) an advanced degree in computer science or related field." Ex. 2007 ¶ 37. Nonetheless, Dr. Medvidovic acknowledges Dr. Davidson's opinion as to the relevant level of skill and further opines that the opinions stated in his declaration would be the same if rendered from the perspective of the person of ordinary skill in the art set forth by Dr. Davidson. *Id.* ¶¶ 39–40 (citing Ex. 1018 ¶ 30).

We determine that the differences in the declarants' assertions are negligible and that both assessments are consistent with the '494 patent and

the referenced prior art. For the purposes of the analysis below, we adopt Dr. Medvidovic's assessment.

3. Scope and Content of the Prior Art – Overview of Swimmer

Swimmer is generally directed to a system, referred to as the "Virus Intrusion Detection Expert System" ("VIDES"), that is described as "a prototype for an automatic analysis system for computer viruses." Ex. 1005, 1, 2. In Swimmer's prototype, an emulator is used to monitor the system activity of a virtual computer, but Swimmer also states that "VIDES could conceivably be used outside the virus lab to detect viruses in a real environment" and that "[o]ne possibility is to use it as a type of firewall for programs entering a protected network." *Id.* at 1, 13.

In general, Swimmer discloses that sets of rules are used to detect viruses and extract details of their behavior. *Id.* at 1–7. Swimmer provides a model of virus attack strategy and discloses that virus-specific rules can be generated and translated into a rule-based language ("RUles-baSed Sequence Evaluation Language," or "RUSSEL"). *Id.* at 4–7. For example, based on assumptions about the behavior of disk operating system (DOS) viruses, Swimmer identifies two possible infection strategies: (1) writing to the beginning of a file (BOF) without a previous read to the same location, and (2) reading to BOF followed by a writing to BOF, with or without intervening reads and writes. *Id.* at 5–6.

Swimmer discloses that VIDES collects system activity data and creates a set of audit records having a specified format for analysis by a tool referred to as "Advanced Security audit trail Analysis on uniX" ("ASAX"). *Id.* at 1, 9. ASAX is described as an expert system that analyzes the data produced by the VIDES emulator, using RUSSEL to identify the virus

attack. *Id.* at 1, 4, 10–13. Swimmer also discloses that ASAX provides a filter that reduces the number of audit records to only relevant, higher-level records. *Id.* at 6–7. In particular, a "first ASAX system reads the raw audit trail, converts it into generic data, and pipes its output as a [Normalized Audit Data Format] NADF file for further processing," and "[u]sing ASAX as a filter allows [for] reduc[tion in] the complexity of maintaining the system while not sacrificing any power." *Id.* at 7, 12. The audit records identify, among other things, DOS functions requested by the analyzed program, the register/memory values used in calls to the DOS functions, and register/memory values returned by the function calls. *Id.* at 1, 7, 9.

Swimmer explains that VIDES each audit record has the format <*code segment*, *RecType*, *StartTime*, *EndTime*, *function number*, *arg (...)*, *ret (...)*>, where *code segment* is the address in memory of the executable image of the program; *function number* is the number of the DOS function requested by the program; *arg (...)* is a list of register/memory values used in the call to a DOS function; *ret (...)* is a list of register/memory values as returned by the function call; *RecType* is the type of the record; and *StartTime* and *EndTime* are the time stamp of action start and end, respectively. *Id.* at 9.

An example of an excerpt from an audit trail is provided in Figure 3 of Swimmer, reproduced below.

```
<CS=3911 Type=0 Fn=30 arg() ret( AX=5)>
<CS=3911 Type=0 Fn=29 arg() ret( BX=128 ES=3911)>
<CS=3911 Type=0 Fn=64 arg( AL=61 CL=3 str1=*.COM) ret( AL=0 CF=0)>
<CS=3911 Type=0 Fn=51 arg( AL=0 str1=COMMAND.COM) ret( AL=0 CX=32 CF=0)>
<CS=3911 Type=0 Fn=51 arg( AL=1 str1=COMMAND.COM) ret( AL=0 CX=32 CF=0)>
<CS=3911 Type=0 Fn=45 arg( AL=2 CL=32 str1=COMMAND.COM) ret( AL=0 AX=5 CF=0)>
<CS=3911 Type=0 Fn=73 arg( BX=5) ret( CX=10241 DX=6206 CF=0)>
<CS=3911 Type=0 Fn=27 arg() ret( CX=5121 DX=8032)>
<CS=3911 Type=0 Fn=47 arg( BX=5 CX=3 DX=828 DS=3911) ret( AX=3 CF=0)>
<CS=3911 Type=0 Fn=50 arg( AL=2 BX=5 CX=0 DX=0) ret( AL=0 AX=50031 DX= CF=0)>
<CS=3911 Type=0 Fn=48 arg( BX=5 CX=648 DX=313 DS=3911) ret( AX=648 CF=0)>
<CS=3911 Type=0 Fn=50 arg( AL=0 BX=5 CX=0 DX=0) ret( AL=0 AX=0 DX=0 CF=0)>
<CS=3911 Type=0 Fn=48 arg( BX=5 CX=3 DX=831 DS=3911) ret( AX=3 CF=0)>
<CS=3911 Type=0 Fn=74 arg( BX=5 CX=10271 DX=6206) ret( CF=0)>
<CS=3911 Type=0 Fn=46 arg( BX=5) ret( CF=0)>
<CS=3911 Type=0 Fn=51 arg( AL=1 str1=COMMAND.COM) ret( AL=0 CX=32 CF=0)>
                                        :
```

Figure 3: Excerpt from an audit trail for the Vienna virus

Figure 3, above, is described by Swimmer as an excerpt from an audit trail for the Vienna virus, provided as a human-readable representation of a binary NADF file and omitting certain fields (apparently, *StartTime* and *EndTime*) for clarity and brevity. *Id.* at 9–10.

On its face, Swimmer includes the following header: "VIRUS BULLETIN CONFERENCE, SEPTEMBER 1995." Ex. 1005, 1; *see also id.* at 3, 5, 7, 9, 11, 13 (including the same header). Along with the Petition, Petitioner introduced a declaration of Dr. Sylvia Hall-Ellis, Director of Grants and Resource Development for the Colorado Community College System and Adjunct Professor in the School of Information at San Jose State University, testifying that Exhibit 1005 is a true and correct copy of Swimmer, which appeared in the Proceedings of the Fifth Virus Bulletin International Conference ("Virus Bulletin Proceedings"); that a true and correct copy of the Virus Bulletin Proceedings is presented as Exhibit 1010; and that a true and correct copy of the Machine Readable Cataloging (MARC) record for the Virus Bulletin Proceedings, obtained from the Online Computer Library Center (OCLC) Connexion database with a record

number created on December 1, 1995, by a cataloger at the University of Washington Library, is presented as Exhibit 1011. Ex. 1006 ¶¶ 18, 19. Dr. Hall-Ellis additionally testifies as to background information regarding the significance of MARC and OCLC records, and opines that "[i]n view of the foregoing, the Virus Bulleting [sic] Proceedings, including Swimmer, would have been accessible to the public as of December 1, 1995." *Id.* at ¶¶ 6–12, 20.

4. Discussion – Differences Between the Claimed Subject Matter and the Prior Art

a. Claim 1

Petitioner asserts in the Petition that Swimmer teaches or suggests all of the limitations of each of the challenged claims. Pet. 12–25. With respect to claim 1, Petitioner contends, first, that Swimmer discloses a "computer-based method," as recited in the preamble of claim 1. *Id.* at 13–14. In particular, Petitioner contends, "Swimmer explains that its VIDES system is used to detect viruses in application programs and program code by monitoring and analyzing the functions and operations these programs attempt to invoke." *Id.* at 14 (citing Ex. 1005, 7; Ex. 1018 ¶ 89). "These application programs can include 'programs entering a protected network' (*i.e.*, executable code being downloaded over a network)." *Id.* (citing Ex. 1005, 13).

Second, according to Petitioner, because Swimmer "explains that the VIDES system can be used in a networked environment as part of a firewall for a protected network," Swimmer explicitly discloses that an incoming Downloadable is received over a network, as recited in claim 1. *Id.* at 15–16 (citing Ex. 1005, 13; Ex. 1018 ¶¶ 92–93 (explaining that firewalls are

security devices or software located between an outside network, such as the Internet, and an internal network, such as an intranet that connects client computers)).

Third, Petitioner contends, "Swimmer discloses . . . deriving security profile data for the Downloadable, including a list of suspicious computer operations that may be attempted by the Downloadable," as recited in claim 1. *Id.* at 16 (boldface omitted). In particular, Petitioner alleges, to generate system activity data, Swimmer's emulator "accepts the entire instruction set of a processor as input, and interprets the binary code as the original processor would." *Id.* at 16–17 (quoting Ex. 1005, 8). Petitioner points out, Swimmer's audit trail includes a field entitled "function number" that identifies and lists numbers corresponding to DOS functions requested by an analyzed program. Pet. 17. Petitioner provides evidence that such function numbers were known in the prior art to correspond to, among other functions, the same four types of operations that are recited as "suspicious computer operations" in challenged dependent claims 6 and 15. *Id.* at 17–18, 21–22 (citing Ex. 1018 ¶¶ 117–120 (citing Ray Duncan, *Advanced MS-DOS* 272–82 (Microsoft Press 1986) ("Duncan") (Ex. 1020, 3–13))). More particularly, with reference to the audit record format and illustrative audit trail presented by Swimmer (Ex. 1005, 9, Fig. 3), Petitioner contends:

> Swimmer explains that audit records generated by the audit system include a field, called "function number," which is the "number of the DOS function requested by the program." [Ex. 1005,] 9. As explained by Dr. Davidson, in DOS, function numbers are assigned to "INT 21h" functions, which include various types of system operations. [*Id.* at] 7 ("Primarily, interrupt 0x21 is used"); [Ex. 1018] ¶ 100. For example, function numbers 0, 49, 76 are program termination operations. Function numbers 15 are file operations (open, close). Functions 72-74,

> and 88 are memory operations. Function numbers 68, 94, and 95 are network operations. [*Id.* at] ¶ 101. Significantly, these operations identified by Swimmer's audit system are the very same types of operations referred to by the applications related to the '494 patent as examples of "suspicious operations." [Ex. 1002, 18:9-13] (DSP data "includes the fundamental computer operations," in a Downloadable such as "file management operations, system management operations, memory management operations and CPU allocation operations."). Thus, Swimmer discloses deriving security profile data (*e.g.*, audit records) that includes a list of suspicious operations that the Downloadable may attempt to invoke (*e.g.*, INT 21h system functions). [Ex. 1018] ¶ 102.

Pet. 17–18.

Lastly, Petitioner argues that Swimmer discloses that the audit records (i.e., Downloadable security profile data) are stored in a database, as recited in claim 1. *Id.* at 18–19. Petitioner contends, in particular, that Figure 3 of Swimmer shows that "the audit record includes a list of suspicious operations identified by the audit system that are organized according to a clearly defined structure with various fields (*i.e.*, an organized collection of data that is organized based on a particular schema)." *Id.* at 19. Moreover, Petitioner contends, "to the extent Patent Owner argues that the claimed 'database' must 'serve one or more applications,' Swimmer . . . discloses that the audit records stored in the database are used by other processes." *Id.* at 19–20. "For example, the database is used by an expert system (*e.g.*, application) to analyze program behavior using virus behavior rules." *Id.* at 20 (citing Ex. 1005, 1, 2).

Based on the record developed at trial, we are persuaded that Petitioner explains sufficiently how Swimmer teaches or suggests each limitation of claim 1 to establish by a preponderance of the evidence that the

subject matter of claim 1 would have been obvious over Swimmer. Patent Owner's arguments to the contrary, addressed below, do not persuade us otherwise.

i. Public Accessibility of Swimmer

As an initial matter, Patent Owner contends that Petitioner has failed to show that Swimmer was publicly accessible prior to the critical date. PO Resp. 1. Patent Owner argues that Dr. Hall-Ellis testified in a deposition that she had no first-hand knowledge as to the public availability of Swimmer or the creation of the MARC record for Swimmer; that she first learned of Swimmer in August 2015; that she did not attend the Virus Bulletin conference where Swimmer was allegedly made available; and that the alleged date Swimmer was cataloged by the University of Washington does not represent that Swimmer was actually distributed at the Virus Bulletin conference in 1995. *Id.* at 17–18 (citing Ex. 2011 (Hall-Ellis deposition transcript), 39:4–8, 40:2–14, 44:19–25, 50:17–51:3, 59:19–61:9, 63:21–25). Patent Owner also argues Swimmer itself makes clear that it was not publicly accessible, pointing to a statement at the bottom of the first page of Swimmer that "No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form without the prior written permission of the publishers." *Id.* at 16–17 (citing Ex. 1005, 1).

Petitioner replies that the evidence clearly demonstrates that Swimmer was available and disseminated to the relevant public in September 1995 and published and made available through the library system by at least December 1995, both of which are well before the November 6, 1996, earliest-possible priority date of the '494 patent. Pet. Reply 23. Petitioner contends that Swimmer bears a copyright date of 1995 and states that it was

published in September 1995; that the Virus Bulletin Proceedings shows that Swimmer was available and disseminated at a conference in Boston on September 20–22, 1995; and that Dr. Hall-Ellis's declaration establishes that a MARC record corresponding to the Virus Bulletin Proceedings was created by the University of Washington Libraries on December 1, 1995, affirming that Swimmer would have been publicly available at that time. *Id.* at 23–24 (citing, e.g., Ex. 1005, 1; Ex. 1006 ¶¶ 18–20; Ex. 1010, 12; Ex. 1011). Petitioner contends Dr. Hall-Ellis "testified at length" in her deposition about her extensive experience with library cataloging and shelving practices, both generally and specifically with respect to Swimmer, and that neither first-hand knowledge of the distribution of Swimmer at the Virus Bulletin conference nor physical presence at the creation of the MARC record in December 1995 is required to prove public accessibility. *Id.* at 24 (citing Ex. 2011, 17–20, 25–28, 37–45, 56, 59, 63). Petitioner additionally provides (1) a supplemental declaration of Dr. Hall-Ellis, providing, *inter alia*, additional explanation of the reliability and significance of the MARC record relied upon in her first declaration (Ex. 1037 ¶¶ 8–22); (2) a declaration of Dr. Richard Ford, stating that he was an executive editor at Virus Bulletin in 1995; that he personally attended the Virus Bulletin conference in Boston in September 1995, at which Swimmer was presented; and that he received upon checking in to the conference—and still possesses—a binder of the conference proceedings (Ex. 1040), including a copy of Swimmer (Ex. 1039, 7–20) identical to Exhibit 1005 (Ex. 1038 ¶¶ 2, 6–14); and (3) a declaration of Joseph Kiegel, stating that he has worked at the University of Washington Library for more than 30 years and has personal knowledge of its cataloging and shelving

practices in the 1995 timeframe; that a copy of the Proceedings of the Fifth International Virus Bulletin Conference (Ex. 1026), including the Swimmer reference (*id.* at 106–119), is held and maintained by the University of Washington Engineering Library and bears a date stamp of December 9, 1995; that the Engineering Library's standard practice in the 1995 timeframe was to date stamp all materials upon receipt, after which they were shelved within a few days; and that the Virus Bulletin proceedings would have been on the shelf and available to the public in December 1995 (Ex. 1041 ¶¶ 1–8).

We agree with Petitioner that the evidence produced at trial sufficiently demonstrates that Swimmer was disseminated to attendees upon check-in at The Fifth International Virus Bulletin Conference, held in Boston on September 20–22, 1995. Moreover, even disregarding Petitioner's Reply evidence, we credit Dr. Hall-Ellis's testimony in her initial declaration as sufficient to establish, at minimum, that Swimmer was publicly available no later than December 1995 (Ex. 1006 ¶¶ 3, 6–12, 18–20). Because we credit Dr. Hall-Ellis's testimony regarding the reliability of MARC records and the procedures that she employed in formulating her opinion in this case, we agree with Petitioner (*see* Pet. Reply 24) that neither first-hand knowledge of the distribution of Swimmer at the Virus Bulletin conference nor physical presence at the creation of the MARC record in December 1995 is required to prove public accessibility as of December 1995. Moreover, we do not find Swimmer's inclusion of a standard copyright notice purporting to restrict reproduction, storage, and transmission sufficient to support Patent Owner's position in light of the evidence documenting that Swimmer was cataloged by and available through the University of Washington Libraries as of December 1995.

ii. Swimmer Does Not Teach Away from the Claimed Subject Matter

Patent Owner next contends that Swimmer teaches away from the invention claimed in the '494 patent. PO Resp. 19. Patent Owner points to statements in Swimmer that "[e]very file has to be processed" and that "there are no shortcuts," and contends that, from those statements, "one of skill in the art would not be motivated to create a system that involved systems that were able to shortcut the processing of Downloadables, such as the system claimed in the '494 Patent." *Id.* (citing Ex. 1005, 1; Ex. 2007 ¶ 53). Patent Owner also contends that Swimmer teaches that database-based systems can be easily circumvented and are not efficient, and, therefore, teaches away from the use of database solutions. *Id.* at 19–20 (citing Ex. 1005, Abstract, 3, 7, 13; Ex. 2007 ¶ 107). As explained in more detail below, we are persuaded that Swimmer teaches or suggests all elements of claims 1, 2, and 6, including storing Downloadable security profile data in a database. Moreover, we do not understand Swimmer's statements regarding every file needing to be "processed" and there being "no shortcuts" to teach away from any of the recited elements of claims 1, 2, or 6, given the generalized nature of its statements concerning virus detection. Ex. 1005, 1.

iii. Swimmer Teaches a "List of Suspicious Computer Operations"

Patent Owner next contends "Swimmer does not disclose 'a list of suspicious computer operations that mat be attempted by the Downloadable,' because Swimmer never deems any operations as suspicious." PO Resp. 22. Patent Owner argues, "[i]n the '494 Patent, the derived 'list of suspicious computer operations' cannot be created without

the additional step of deeming certain operations as suspicious," and "[i]n fact, the specification of the '494 Patent[4] demonstrates that deriving a list of suspicious computer operations involves an affirmative determination that an operation added to the list is suspicious." *Id.* at 22–23 (citing Ex. 1013, 9:20–42; Ex. 2007 ¶ 84). In contrast, Patent Owner contends, "Swimmer's audit trail does not deem any operations as suspicious. At most, Swimmer's audit trail has a 'function number' attribute to designate standard DOS function numbers logged." *Id.* at 23. Patent Owner contends that the DOS function numbers listed in Swimmer's audit trail are not a list of suspicious computer operations. *Id.* Patent Owner points out that Duncan, cited by Petitioner, explains that "MS-DOS functions . . . are well standardized and available on any MS-DOS system." *Id.* at 24 (quoting Ex. 1020, 5). Citing Dr. Medvidovic's testimony referring to Duncan, Patent Owner further contends "it would be nonsensical to understand a book published by Microsoft that teaches programmers how to utilize MS-DOS system functions to teach that Microsoft's standard system functions are suspicious computer operations." *Id.* (citing Ex. 1020, 5; Ex. 2007 ¶ 92). Patent Owner further contends that "no computer operations are *a priori* suspicious" and that "Petitioner misstates the disclosures of ancestral applications, namely the '639 Provisional and the '194 Patent, to imply that all 'fundamental computer operations' are 'suspicious' by definition." *Id.* at 25.

In reply, Petitioner argues that "[a]lthough Swimmer does not use the word 'suspicious' . . . , these DOS functions are the fundamental operations that provide access to core components of the computer, such as the file

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[4] Once again, although referring to "the specification of the '494 Patent," Patent Owner instead cites the '194 patent.

system, OS, and memory," and "a POSITA would have readily understood that these DOS functions were being recorded by Swimmer's VIDES system because they are the type of operations that can be used by viruses to cause harm (*i.e.*, suspicious computer operations)." Pet. Reply 10 (citing Ex. 1018 ¶¶ 101, 153; Ex. 1027 ¶¶ 82–90). Further, Petitioner contends, Patent Owner's assertions that "Swimmer's audit trail does not deem any operations suspicious" and that "there must be a list designating ***only*** the suspicious operations" are "premised entirely on [Patent Owner's] unreasonably narrow claim interpretations and rehashed arguments that the Board previously rejected." *Id.* at 10–11 (citing PO Resp. 22–25, 28). However, Petitioner further contends, Swimmer teaches this claim limitation even under Patent Owner's proposed construction. *Id.* at 11–12. In particular, Petitioner contends:

> [T]he '494 patent makes clear that determining whether a computer operation is "suspicious" simply involves determining whether it is a certain type of operation (*e.g.*, a file system operation).
>
> Significantly, Swimmer teaches this exact technique. Swimmer's audit system only generates audit records for certain types of computer operations, *e.g.*, DOS functions, that the Downloadable attempts to invoke. As Finjan's expert acknowledged, in addition to these types of system functions (*e.g.*, the DOS functions recorded by Swimmer) programs invoke many other types of operations during their execution, such as arithmetic operations, internal functions, and jump operations. [Ex. 1034 (Medvidovic deposition transcript)], 126:19–127:22; [Ex. 1029 (Microsoft Computer Dictionary, 3rd Edition)], 10 (defining "operation"); [Ex. 1027 ¶¶ 65–74]. Thus, Swimmer's audit trail is not just a listing of every operation executed by the Downloadable; rather, it only includes certain operations, *e.g.*, DOS system functions that need to be further analyzed by Swimmer's virus detection system (*i.e.*, suspicious operations).

Id. Regarding Patent Owner's contention that it would be "nonsensical" to believe Microsoft intended standard system functions to be suspicious computer operations (PO Resp. 24), Petitioner argues that "[w]hile this is presumably true, it does not change the fact that these are precisely the type of computer operations used by viruses and other malicious programs." Pet. Reply 12.

As Petitioner points out, Patent Owner's argument is premised on its proposed construction of "a list of suspicious computer operations" as "a list of computer operations *deemed* suspicious" (PO Resp. 10 (emphasis added)), which we rejected in section III.A.1, *supra*. Nonetheless, we are persuaded by Petitioner's arguments and evidence that Swimmer discloses deriving "security profile data including a list of suspicious computer operations" even under Patent Owner's proposed construction. We agree with Petitioner that Swimmer teaches generation of audit records for "INT 21h" (or "interrupt 0x21") DOS system functions (Ex. 1005, 7, 9), which we find include the types of operations that Swimmer identifies to be involved in virus infection strategies—e.g., file operations such as opening, writing, reading, and closing files, as well as filtering of audit results for further processing (*see id.* at 4–8, Fig. 2; Ex. 1020). Although Swimmer does not use the words "deemed" or "suspicious," we understand Swimmer to have deemed those functions suspicious in the same broad manner permitted by the '194 patent that is incorporated by reference into the '494 patent. In particular, the '194 patent states, in its description of Figure 3 thereof:

> The code scanner 325 may generate the DSP data 310 as a list of all operations in the Downloadable code which could ever be

> deemed potentially hostile and a list of all files to be accessed by the Downloadable code. . . .
> An Example List of Operations Deemed Potentially Hostile
> File operations: READ a file, WRITE a file;
> Network operations: LISTEN on a socket, CONNECT to a socket, SEND data, RECEIVE data, VIEW INTRANET;
> Registry operations: READ a registry item, WRITE a registry item;
> Operating system operations: EXIT WINDOWS, EXIT BROWSER, START PROCESS/THREAD, KILL A PROCESS/THREAD, CHANGE PROCESS/ THREAD PRIORITY, DYNAMICALLY LOAD A CLASS/ LIBRARY, etc.; and
> Resource usage thresholds; memory, CPU, graphics, etc.

Ex. 1013, 5:50–6:4. Further, as explained in Section III.A.1, *supra*, column 9, lines 20–29, of the '194 patent, cited by Patent Owner in support of its contention that the method of claim 1 requires a preliminary "deeming" step, expressly connects the determination as whether a resolved command is "suspicious" with, for example, "whether the command is one of the operations identified in the list described above with reference to FIG. 3." In relying on the disclosure of the '194 patent, we are not using knowledge gleaned from the challenged patent—e.g., "the insight to deem some subset of 'calls made to an operating system, a file system, a network system, and to memory' as suspicious" (*see* PO Resp. 11)—to prove obviousness, but we instead look to that disclosure in regard to the meaning of the term "suspicious" in the '494 patent that demonstrates Swimmer had the same understanding, even if not in *ipsis verbis*, prior to the '494 patent's earliest claimed priority date.

As Patent Owner acknowledges (PO Resp. 27), we explained in the Decision on Institution that we do not understand the recited step of

"deriving security profile data for the Downloadable, including a list of suspicious computer operations that may be attempted by the Downloadable" to require the recited list to consist only of suspicious computer operations. Dec. on Inst. 22. Patent Owner contends that "although the derived DSP data does not need to include *only* a list of suspicious computer operations, there must be at least a derived list of suspicious computer operations included in the DSP, [and] Swimmer does not disclose such a list." PO Resp. 28. We disagree. This is not akin to Patent Owner's analogy that "if asked to provide a list of people who will be invited to a party, a copy of the most recent census would not serve the purpose, even if every person who was to be invited to the party was also included in the census." *Id.* Rather, in view of the '194 patent's broad pronouncement that DSP data may be generated "as a list of all operations in the Downloadable code which could *ever* be deemed potentially hostile" (Ex. 1013, 5:50–53 (emphasis added))—which, for reasons explained above, we determine provides the best indication as to what the claim phrase "list of suspicious computer operations" means in the context of claim 1—a more apt analogy would be "if asked to provide a list of all people who *could ever potentially be invited* to a party," for which, we find, a copy of the most recent census may well serve the purpose.[5]

In our Rehearing Decision, we stated that "[w]e understand Swimmer's 'activity data,' which, as cited by Petitioner, are each contained

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[5] We also do not understand Swimmer to register *all* calls to DOS functions. Swimmer explains that "[t]he very first implementation of an auditing system . . . registered all calls to DOS functions," but that that implementation "did not run reliably, and could be subverted by tunnelling viruses" and "was soon scrapped." Ex. 1005, 7.

within an audit record, to be 'Downloadable security profile data,' in the parlance of claims 1 and 10 of the '494 patent." Reh'g Dec. 6. Apparently referring to that statement, Patent Owner contends that "[t]he Board's position that system activity data within a single audit record meets the DSP limitation does not withstand scrutiny," because "an '***audit record***' is 'a set of attributes related to a single event in the activity data," and "each audit record can only include a single MS-DOS function number, not a list of computer operations." PO Resp. 28–29. We agree with Patent Owner that each audit record in Swimmer includes only a function number corresponding to a single computer operation, rather than a list of computer operations, but disagree that we found otherwise in the Rehearing Decision. To the extent the above quoted statement is subject to other interpretation, we clarify that we understand Swimmer's activity data (plural) to be Downloadable security profile data, and that the individual elements of those activity data are stored in audit records.

iv. Swimmer Teaches "Storing" Security Profile Data in a "Database"

Patent Owner contends that "Petitioner never mapped any portion of Swimmer to the adopted construction of 'database,'" and that "Petitioner's mapping of an audit trail to a database is contrary to the teaching of Swimmer." PO Resp. 32. According to Patent Owner, "Swimmer specifically uses the term 'database' in its disclosure, and explains how they should not be used." *Id.* (citing Ex. 1005, 3). Moreover, according to Patent Owner, "Swimmer's technique does not involve placing the derived DSP data into a database. At most, Swimmer uses the terms 'convert' and 'conversion' to describe the actions associated with its audit trail," but "one

of skill in the art recognized that 'converting' is an action that is different from storing." *Id.* at 34–35 (citing Ex. 1005, 7, 12; Ex. 2007 ¶¶ 109, 111). Patent Owner further contends Swimmer's audit trail is not a database because it is a log file. *Id.* at 35–43. More particularly, according to Patent Owner, Petitioner's declarant Dr. Davidson admitted that Swimmer's audit trail is a log file, and the practical import of the Board's adoption of Patent Owner's construction is that "database" is not broad enough to include a log file. *Id.* at 35–37. Further, "Swimmer's audit trail cannot be considered a 'flat-file database' as urged by Petitioner," both because "the Petition and Dr. Davidson's declaration are both devoid of any explanation of what a flat-file database is or why a POSITA would consider Swimmer's audit trail to be" one, and also because "Swimmer's 'audit trail' . . . does not contain a database schema." *Id.* at 37–38 (citing Pet. 19; Ex. 2007 ¶¶ 121, 140; Ex. 2024 (Microsoft Computer Dictionary, 3rd Edition), 199 (defining "flat-file database"). "In addition to Swimmer's audit trail not being organized according to a 'database schema,'" Patent Owner contends, "the audit trail has all of the hallmarks of a traditional log file," including being "provided in a generic format," being "a sequential file in which records are sequentially appended," and having "individual audit records [that] . . . simply share the same format rather than being governed by a database schema." *Id.* at 39–40 (citing Ex. 2007 ¶¶ 119–121). Patent Owner further contends that the '494 Patent itself distinguishes between log files for event logging and the claimed database, and a person of ordinary skill in the art would understand that the '494 patent distinguishes between them in both form and function. *Id.* at 40 (citing Ex. 2007 ¶¶ 126, 128). Finally, Patent Owner contends that one of skill in the art would not be motivated to

substitute Swimmer's log file with a database, because Swimmer teaches against database-based systems, explicitly teaches the use of "files," not "databases," and substitution of Swimmer's audit trail for a database would not improve performance in Swimmer's system. *Id.* at 43–46 (citing Ex. 1005, 3, 10, 12, 13; Ex. 2007 ¶¶ 53, 60, 107, 114–128, 137–139, 148).

Petitioner replies that Swimmer does not teach away from using databases, but in fact teaches storing audit records in a database. Pet. Reply 14. First, according to Petitioner, the background portions of Swimmer Patent Owner cites as teaching away from use of databases simply provide recognition that certain prior-art pattern-matching virus-detection techniques that used databases of "virus identification information" may not be effective for all types of viruses, and do not criticize the use of databases generally. *Id.* As to Patent Owner's argument that Swimmer does not "store" audit records, Petitioner contends: "Nothing could be further from the truth. As Finjan acknowledges, Swimmer clearly teaches that its audit records are 'produced' by the emulator and then placed into a large sequential ***file***." *Id.* at 14–15 (citing PO Resp. 14; Ex. 1005, 10, 12, Fig. 3; Ex. 1029, 7 (defining "file" as "a basic unit of storage"); Ex. 2007 ¶¶ 71, 107). Indeed, according to Petitioner, "it would be technically impossible for Swimmer's system to generate a list of audit records, put them in a file, and then access and analyze these records without placing them in any form of storage." *Id.* at 15 (citing Ex. 1027 ¶ 20). Petitioner further contends Swimmer teaches storing the audit trail in a database, despite Patent Owner's arguments (1) that Dr. Davidson admitted that Swimmer's audit trail is a "log file," (2) that Swimmer's audit trail is a "flat file" but not a

"flat file database," and (3) that Swimmer's audit trail does not have a "database schema." *Id.* at 15–17 (citing PO Resp. 36–39).

Having considered the full trial record, we are persuaded that Swimmer teaches storing security profile data in a "database," as that term is properly construed as "a collection of interrelated data organized according to a database schema to serve one or more applications." *See supra* Section III.A.3. In particular, the file includes audit records relating code segments with function numbers corresponding to the DOS functions they invoke; the memory/register values, if any, used in the calls to those functions; the return values, if any, returned by those functions; and the corresponding action start and end times—thus, "a collection of interrelated data." *See* Ex. 1005, 9, Fig. 3. Those data are organized according to a database schema, namely, the comma-delimited format "<*code segment*, *RecType*, *StartTime*, *EndTime*, *function number*, *arg (...)*, *ret (...)*>," analogous to the UNIX password database */etc/passwd* cited by Petitioner, having the colon-delimited record schema "*name:passwd:uid:gid:info:home:shell*." *Id.*; Pet. 19 ("[T]he audit record includes a list of suspicious operations identified by the audit system that are organized according to a clearly defined structure with various fields (*i.e.*, an organized collection of data that is organized based on a particular schema)."); Pet. Reply 16–17; Ex. 1018 ¶ 107; Ex. 1027 ¶ 28; Ex. 1031, 6. Finally, Swimmer discloses that the audit trail data are provided as an NADF file "for further processing"—i.e., to serve an application. Ex. 1005, 7, 12–13; *see* Pet. 19–20 ("Swimmer . . . discloses that the audit records stored in the database are used by other processes. For example, the database is used by an expert system (*e.g.*, application) to analyze program behavior using virus behavior rules.");

Ex. 1018 ¶ 109. Although, as Patent Owner repeatedly points out (*see* PO Resp. 20, 44–45 (citing Ex. 1005, 13; Ex. 2007 ¶¶ 107, 125)), Swimmer states that "the rule-based language RUSSEL allows each record to be processed only once" (Ex. 1005, 13), we do not understand that statement to suggest that the audit trail data are not stored. To the contrary, we agree with Petitioner that Swimmer's use of the term "file" and the disclosure of "further processing" *require* that the data be stored, and not merely "converted," as Patent Owner contends. *See* PO Resp. 34–35; Pet. Reply 14–15.

Patent Owner also contends that the entire security profile must be derived before any of the DSP data can be stored. PO Resp. 46–47. As explained in Section III.A.3, *supra*, we agree with Petitioner that the claims do not require that the "entire" security profile must be derived before placing any of the DSP data into the database. *See* Pet. Reply 9, 17.

In summary, we are persuaded, for the foregoing reasons, that Petitioner has carried its burden to demonstrate that all limitations of claim 1 are taught or suggested by Swimmer.

b. Claim 2

Claim 2 depends from claim 1 and further recites "storing a date & time when the Downloadable security profile data was derived, in the database." Ex. 1001, 21:26–28. In support of its contention that Swimmer renders claim 2 unpatentable, Petitioner points to Swimmer's disclosure that each audit record entry includes "*StartTime*" and "*EndTime*" fields that indicate when the audit record was generated by the emulator and/or audit system. Pet. 20–21 (citing Ex. 1005, 9, 10, Fig. 3; Ex. 1018 ¶¶ 115–116).

Patent Owner does not provide any separate argument with respect to claim 2 in the Patent Owner Response.

We have considered the evidence cited in the Petition and are persuaded, for the reasons presented by Petitioner, that Petitioner has carried its burden to demonstrate that "storing a date & time when the Downloadable security profile data was derived, in the database" is taught by Swimmer.

c. Claim 5

Claim 5 depends from claim 1 and further recites that the Downloadable "includes program script." Ex. 1001, 21:33–34. In support of its contention that Swimmer renders claim 5 unpatentable, Petitioner points to Swimmer's disclosure that VIDES can be used to derive security profile data for application programs and code, including programs received at a firewall, and argues that "[a]lthough Swimmer does not explicitly state that the Downloadables that are received and analyzed include 'program scripts,' this would have been obvious" to a person of ordinary skill in the art. Pet. 22 (citing Ex. 1005, Abst., 13; Ex. 1018 ¶¶ 121–122). Petitioner also points out that the '494 patent admits that various kinds of program scripts, including scripts received over a network, were well-known and disclosed in the prior art. *Id.* (citing Ex. 1001, 2:22–27). Thus, Petitioner contends, for a person of ordinary skill in the art, "this would have merely involved applying the same techniques to another well-known form of executable code (*e.g.*, receiving program scripts at a firewall and using the emulator to identify and record suspicious operations in the script)," and a person of ordinary skill in the art "would have been motivated to do so for a number of reasons, including to improve the effectiveness of the virus

detection system taught by Swimmer by enabling use with a wider range of Downloadables." *Id.* at 23 (citing Ex. 1018 ¶¶ 124–125).

In response to Petitioner's contentions, Patent Owner contends Swimmer's system cannot process program script. PO Resp. 52. Relying on the testimony of Dr. Medvidovic and an MS-DOS Programmer's Reference book (Ex. 2031), Patent Owner argues "Swimmer's system is tied to the MS-DOS operating system to perform the emulation of a MS DOS program and log DOS function numbers," and "MS-DOS only recognizes two program types: .COM and .EXE, not program script, such as JavaScript." *Id.* (citing Ex. 2007 ¶ 168; Ex. 2031, 10). Further, according to Patent Owner, "Swimmer relies on the 8086 emulator and can only emulate MS-DOS programs that have been compiled into binary code," whereas "[i]n contrast JavaScript, is not compiled but rather remains textually coded in a human-readable format when included along with web page." *Id.* at 52–53 (citing Ex. 2007 ¶ 167; Ex. 2024, 269 (defining "JavaScript"); Ex. 2025 (Oxford Dictionary of Computing, 4th Edition), 40 (defining "binary code")). "[D]ue to these fundamental differences in structure and function (e.g. from a 8086 emulator tied to MS-DOS operating system and MS-DOS programs as opposed to program script, such as JavaScript, that runs in a browser that is typically independent of the operating system)," Patent Owner argues, "Petitioner's suggested modification is not sufficient to render the claims prima facie obvious." *Id.* at 53.

Petitioner argues in its Reply that Swimmer's VIDES system can emulate scripts. Pet. Reply 19. Specifically, relying on Dr. Davidson's testimony, Petitioner contends that "an emulator can directly run compiled scripts," and that, "while a binary executable interpreter (e.g., a shell) is

needed to indirectly run textual scripts," "Swimmer's emulator can execute and interact with an interpreter through MS-DOS INT21H functions to generate an audit trail, for the script . . . just like any other executable." Pet. Reply 19 (citing Ex. 1027 ¶¶ 103–111; Ex. 2012, 114:15–118:15).

Having considered the full trial record, we are not persuaded that claim 5 is unpatentable over Swimmer. In particular, although we credit Dr. Davidson's testimony that program scripts were "well-known by the time of the '494 patent," that program scripts were often included in files and messages transmitted through firewalls, and that a person of ordinary skill in the art would have been motivated to receive and derive security profile data for program scripts (Ex. 1018 ¶¶ 122–124), we are not persuaded that such a person of ordinary skill would have understood Swimmer to teach or suggest that the VIDES system could be used to do so, particularly to the extent that it would be necessary to interpose a "script interpreter" between the script and the emulator in Swimmer's system (*see* Ex. 1027 ¶¶ 104–111). Although we note that Dr. Davidson also testifies that "in certain cases a script can be compiled into a binary executable program" and that "[i]n this case, such a compiled script could execute directly using an emulator such as Swimmer's" (*id.* ¶ 104), neither Petitioner nor Dr. Davidson provides any examples of such scripts or any evidence that such scripts were known before the earliest priority date of the '494 patent. We, accordingly, find his testimony in that regard unpersuasive. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.").

d. Claim 6

Claim 6 depends from claim 1 and further recites that the suspicious computer operations "include calls made to an operating system, a file system, a network system, and to memory." Ex. 1001, 21:35–37. In support of its contention that Swimmer renders claim 6 unpatentable, Petitioner argues that "Swimmer discloses that the emulator and/or audit system identifies and records DOS system calls (*i.e.*, suspicious operations) that a Downloadable attempts to invoke." Pet. 21 (citing Ex. 1005, Fig. 3). Citing Dr. Davidson's testimony that different function numbers are assigned to the different types of system calls, including function numbers for file system operations, network system operations, and memory operations, Petitioner contends a person of ordinary skill in the art would have considered all of the system calls to be "operating system operations." *Id.* Petitioner additionally contends that certain other function numbers correspond to operating system operations for terminating a program, which, Petitioner points out, is an example of an operating system operation explicitly discussed in the '194 patent. *Id.* at 21–22 (citing Ex. 1005, Fig. 3; Ex. 1018 ¶¶ 119–120; Ex. 3001, 5:66–6:3). Patent Owner does not provide any separate argument with respect to claim 6 in the Patent Owner Response.

We have considered the evidence cited in the Petition and are persuaded, for the reasons presented by Petitioner, that Petitioner has carried its burden to demonstrate that Swimmer teaches that the recited suspicious computer operations "include calls made to an operating system, a file system, a network system, and to memory."

e. Claims 10, 11, 14, and 15

As reproduced in Section II.C, *supra,* claim 10 is an independent claim directed to a system comprising a "receiver," a "Downloadable scanner coupled with said receiver," and a "database manager coupled with said Downloadable scanner," for carrying out the "receiving," "deriving," and "storing" steps, respectively, recited in independent method claim 1.

In support of its contention that claim 10 is unpatentable over Swimmer, Petitioner contends that Swimmer discloses a "system for managing Downloadables," as recited in the preamble of claim 10. *Id.* at 13–14. In particular, Petitioner contends, "Swimmer explains that its VIDES system is used to detect viruses in application programs and program code by monitoring and analyzing the functions and operations these programs attempt to invoke." *Id.* at 14 (citing Ex. 1005, 7; Ex. 1018 ¶ 89). "These application programs can include 'programs entering a protected network' (*i.e.*, executable code being downloaded over a network)." *Id.* (citing Ex. 1005, 13).

Relying on the testimony of Dr. Davidson, Petitioner further contends that, "in order for VIDES to be used at a firewall for 'programs entering a protected network' (*i.e.*, receive and analyze incoming Downloadables), a [person of ordinary skill in the art] would have understood that the system necessarily included a 'receiver' (i.e., networking components) for receiving these Downloadables." *Id.* at 16 (citing Ex. 1018 ¶ 94). Petitioner, accordingly, asserts that "Swimmer also discloses that the VIDES system includes a 'receiver' for receiving the Downloadable," as recited in claim 10. *Id.* Petitioner also argues, in the alternative, that this feature would have been obvious based on the teachings in Swimmer. *Id.* at 23–24. In

particular, according to Petitioner, it would have been obvious that Swimmer's VIDES "could be used at a network device, such as a gateway or [file transfer protocol ("FTP")] or Web server in order to intercept incoming Downloadables and analyze them before they are sent to a destination computer," and "[o]ne of ordinary skill in the art would have been motivated to do so for a number of reasons, such as to improve the efficiency when checking incoming Downloadables." *Id.* at 23–24. Petitioner contends that, "[f]or one of ordinary skill in the art, this would have involved nothing more than combining well-known prior art elements (i.e., a gateway with Swimmer's VIDES system) according to well-known software programming techniques in order to yield a predictable result (i.e., a gateway scanner that receives Downloadables and analyzes their behavior)." *Id.* at 24 (citing Ex. 1018 ¶ 95).

Petitioner further contends Swimmer discloses that Downloadable security profile data is derived by a "Downloadable scanner (*e.g.*, an emulator and/or audit system)." *Id.* at 18 (citing Ex. 1005, 8 (stating that the emulator is "a program which accepts the entire instruction set of a processor as input, and interprets the binary code as the original processor would"); Ex. 1018 ¶¶ 103–105 (explaining that identification and recordation of DOS function call numbers in Swimmer determines and identifies suspicious operations in the same manner as the code scanner described in the '194 patent)). Petitioner contends that the Downloadable scanner also is coupled to the receiver (e.g., the network components at the firewall), as recited in claim 10. Pet. 18.

Lastly, Petitioner argues that "Swimmer also discloses a 'database manager' (*e.g.*, the audit system or a portion thereof), which stores the

security profile data (*e.g.*, audit records) in the database," and "[a]dditionally, this database manager is coupled to the Downloadable scanner (*e.g.*, emulator)." *Id.* at 20 (citing Ex. 1018 ¶ 110). For example, Petitioner contends, "both components are located on the same computer system (*e.g.*, a firewall) and would be stored together in memory (*e.g.*, RAM)." *Id.* (citing Ex. 1013, 3:23–46, Fig. 3; Ex. 1018 ¶ 110). Petitioner also argues, in the alternative, that "the claimed [database manager for] storing the DSP data in a database would have been obvious based on the teachings in Swimmer." *Id.* at 24–25 (alteration in original). In particular, according to Petitioner, "it would have been obvious to one of ordinary skill in the art that the security profile data in Swimmer could have been stored in any suitable format or structure, such as a relational database." *Id.* (citing Ex. 1018 ¶ 111). "One of ordinary skill in the art would have been motivated to use such a database for a number of reasons," Petitioner contends, including "to improve the organization, efficiency and speed when storing and retrieving this data." *Id.* at 25 (citing Ex. 1018 ¶ 111). "Additionally, one of ordinary skill in the art would have also found it obvious to use a database manager with these types of databases." *Id.* (citing Ex. 1018 ¶¶ 112–113).

In response, Patent Owner submits that Swimmer does not disclose or suggest either the "Downloadable scanner" or the "database manager" recited in claim 10. PO Resp. 29–30, 48–52. Regarding the first of those elements, Patent Owner points out that Dr. Davidson "admitted that the Swimmer system does not use a scanner at all," and further contends that "Swimmer . . . actually teaches against the use of scanners by reasoning that they are easily circumvented." *Id.* at 29 (citing Ex. 1005, 3; Ex. 2012,

153:19–154:6). As to the "database manager," Patent Owner contends that the Petition "struggles to identify the claimed 'database manager' in Swimmer" and "vaguely states that Swimmer's 'audit system or a portion thereof' is the claimed 'database manager.'" *Id.* at 48 (citing Pet. 20; Ex. 1018 ¶ 110). Patent Owner further contends, "[a] person skilled in the art at the time would understand the term 'database manager' to mean 'a program or programs that control a database so that the information it contains can be stored, retrieved, updated and sorted," which definition "is consistent with Dr. Davidson's parenthetical definition of the term, 'a component that manages and controls the storage and retrieval of data in the database,'" but "Swimmer does not have [such] 'a program or programs . . . .'" *Id.* (citing Ex. 1018 ¶ 110). "At most," Patent Owner contends, "Swimmer cites [Mou95], which describes 'a converter program is called a format adaptor' which 'convert[s] a native file to NADF format,'" but "converting is not storing," and "[c]onverting is also not the save [sic] as retrieving such stored information from a database." *Id.* at 48–49 (citing Ex. 1005, 12 (citing [Mou95]); Ex. 2032 ([Mou95]), 1).

Nor would it have been obvious for Swimmer's audit system to include a database manager, Patent Owner contends. *Id.* at 49. According to Patent Owner, although Petitioner cites Dr. Davidson "to argue that it would have been obvious to use a relational database for storing DSP," "the Petition fails to articulate sufficient reasoning as to why a person of ordinary skill in the art would have incorporated a database manager within the system defined by Swimmer." *Id.* at 50. Relying on Dr. Medvidovic's testimony, Patent Owner asserts there "were many suitable formats and structures that existed at the time (e.g. a plain-file, flat-file database,

relational database, raw disk, excel spreadsheet, etc.), [and] there is no reason to pick a relational database storing security profile data for multiple Downloadables out of many other available options." *Id.* (citing Ex. 2007 ¶ 163). "In fact, Swimmer states that [the] 'canonical' aka NADF formatted audit trail disclosed by Swimmer worked well for their intended purpose, and . . . the fact that there are many available options does not mean that it would have been obvious to modify Swimmer to include 'a database manager . . . .'" *Id.* at 50–51. "Furthermore, one of skill in the art would also understand that any attempt to possibly adapt Swimmer to use a database manager as opposed sequential file dependent pipeline processing . . . would require substantial reconstruction and redesign of the elements shown in Swimmer as well as a change in the basic principle under which the Swimmer's sequential file dependent pipeline processing was designed to operate." *Id.* at 51.

In its Reply, Petitioner argues that Swimmer does not "teach[] against" the use of scanners, and that the background portion of Swimmer cited by Patent Owner is referring to "an entirely different type of 'scanner' than the one described and claimed in the '494 patent (which is taught by Swimmer's audit system and/or emulator)." Pet. Reply 13 (citing Ex. 1018 ¶¶ 44–47; Ex. 1027 ¶¶ 47–52; Ex. 2012, 49:20–53:5).

We agree with Patent Owner that Swimmer does not teach or suggest either the "Downloadable scanner" or the "database manager" recited in claim 10. *See* PO Resp. 29–30, 48–52.

First, although we credit Dr. Davidson's testimony and agree with Petitioner that Swimmer does not teach against the use of scanners *per se* (*see* Pet. Reply 13; Ex. 1027 ¶¶ 47–52), Petitioner's arguments and cited

evidence do not persuade us that Swimmer's "audit system and/or emulator" teach the "Downloadable scanner" of claim 10. Indeed, as Patent Owner points out, Dr. Davidson testified at his deposition in this case that Swimmer's system does not use a "scanner":

> Q So Swimmer doesn't use a scanner, right?
>
> A No. I mean, what he is going to do is generate this audit trail and then use a tool to look at it and determine whether we have seen suspicious operations. He is not going to use a scanner.
>
> Or it could be used in conjunction with a scanner, but his technique would not be considered scanning in the normal anti-virus community sense.

Ex. 2012, 153:19–154:7. Despite Petitioner's arguments that the term "scanner" is used differently in Swimmer than in the '494 patent (Pet. Reply 13), we do not understand Dr. Davidson's testimony quoted above to be limited to the former. Further, although Dr. Davidson in the cited testimony left open the possibility that Swimmer's system "could be used in conjunction with a scanner," we do not find any persuasive evidence in the trial record that a scanner merely "used in conjunction with" Swimmer's system would have been "coupled with [the] receiver" that Petitioner alleges to be inherent or obvious to include in Swimmer for receiving an incoming Downloadable, let alone that such scanner would also serve the recited function of "deriving security profile data for the Downloadable, including a list of suspicious operations that may be attempted by the Downloadable" in Swimmer's system.

Second, although we find that Swimmer's NADF file falls within the scope of the term "database" as that term is properly construed (*see supra* Sections III.A.2, III.B.4.a.iv), we do not find any teaching or suggestion in

Swimmer of a "relational" database, and we are not persuaded by Petitioner's evidence that it would have been obvious to use a relational database in place of Swimmer's NADF file, let alone *additionally* to use a database manager with the resulting system. We are persuaded by Patent Owner's argument that "Petitioner's suggested redesign would change the principle [of] operation of the Swimmer system" (PO Resp. 51), particularly because neither Petitioner nor Dr. Davidson explains persuasively how a database manager could beneficially be used by Swimmer without replacing Swimmer's NADF file with a relational database, or why a person of ordinary skill in the art would have had reason to do so in the absence of the benefit of hindsight based on the teachings of the '494 patent itself.

Accordingly, Petitioner has not shown by a preponderance of the evidence that the subject matter of claim 10—or of claims 11, 14, and 15, which depend therefrom—would have been obvious over Swimmer.

5. Secondary Considerations

a. Praise and Commercial Success

Patent Owner contends that its patented inventions have received "much praise and commercial success," and that the evidence thereof is sufficient to overcome Petitioner's obviousness challenge. PO Resp. 53–54. According to Patent Owner, "[t]he commercial success of the patented inventions . . . is evidenced through [Patent Owner's] successful licensing program and the commercial success of the products covered under those licenses, which directly relate to the '494 Patent." *Id.* at 54. Patent Owner further contends its licensees have touted the benefits of the inventions disclosed in the '494 patent and obtained significant sales as a result of products that practice the recitations of the challenged claims. Patent Owner

asserts that various licensees have paid millions of dollars for the right to use its patented technology. *Id.* at 54–55 (citing Ex. 2010 ¶¶ 4–10; Exs. 2017–2022). Patent Owner also contends that after the '494 patent issued, "several licensees entered into licenses agreements, which included a license to the '494 Patent, to avoid litigation and to obtain a license to continue to make, use, offer to sell, and sell products that embodied the inventions disclosed in the '494 Patent." *Id.* at 55. "More specifically," Patent Owner contends, it "has entered into several licenses agreements, which included a license to the '494 Patent, including agreements with F-Secure, Avast, another confidential licensee, Proofpoint and Websense, all major players that operate in the same space as Petitioner." *Id.* (citing Ex. 2010 ¶¶ 5–11; Exs. 2015, 2016). According to Patent Owner, Websense and Proofpoint settled during the course of litigation, and the licensees entered into licenses so they could continue selling their products after receiving notice from Patent Owner that their products infringed the '494 Patent. *Id.* at 55–56 (citing Ex. 2010 ¶¶ 8–9). Patent Owner further provides actual or estimated revenue data for Avast, F-Secure, Websense, and Proofpoint, and contends that "[t]he fact that various companies have taken a license to the '494 patent is powerful evidence of non-obviousness" and that "a presumption exists that the commercial success of [its] licensees[']' products is due to the patented invention of the '494 Patent." *Id.* at 56–60. Consequently, Patent Owner concludes,

> the fact that licensees entered into a license agreement, which included a license to the '494 Patent, to avoid litigation and to continue conducting business, including selling and offering for sale products that encompass the patented technology licensed from Finjan shows that there is a nexus between these license

> agreements and the claims of the ’494 Patent, and that the ’494 Patent is not obvious.

Id. at 60.

In its Reply, Petitioner asserts that Patent Owner has failed to meet the threshold requirement that there be a “nexus” between the merits of the claimed invention and the secondary considerations evidence being relied upon. Pet. Reply 20. More particularly, despite Patent Owner’s assertion of a nexus between its license agreements and claims of the ’494 patent, Petitioner contends that Patent Owner offers only conclusory statements that its licensees have “paid millions of dollars for the right to use Finjan’s patented technology.” *Id.* (quoting PO Resp. 54–55). According to Petitioner, “[t]here is nothing that links these ‘millions of dollars’ to the ’494 patent, let alone the challenged claims, versus the dozens of other patents owned by [Patent Owner],” and “[i]ndeed, the evidence suggests that opposite conclusion.” *Id.* (citing Ex. 2010 ¶ 5 (acknowledging that the ’494 patent did not issue until March 2010)). Petitioner further contends that there is no evidence to show what portion, if any, of the portfolio licenses taken by the companies identified by Patent Owner is attributable to the ’494 patent. *Id.* at 20–21. And in fact, Petitioner contends, “the alleged relevance of these licenses is questionable, at best, given that Finjan relied on the exact same licenses (and very similar arguments) when asserting secondary considerations for an unrelated patent covering entirely different subject matter.” *Id.* at 21 (citing *Palo Alto Networks, Inc. v. Finjan, Inc.*, Case IPR2015-01979, Paper 22, 58–64). Petitioner also points to Patent Owner’s admissions that two of the licenses “were entered to avoid litigation” and that it did not even assert the ’494 patent against another licensee, as further

demonstrating that the licenses were not entered into because of the merits of the claims. *Id.* (citing PO Resp. 55, 58). Whereas Patent Owner provides revenues and identifies products of the five identified licensees, Petitioner points out that there is no evidence indicating what portion of those revenues, if any, is attributable to the '494 patent, let alone to the claimed features of the '494 patent as opposed merely "utiliz[ing] the inventions ***disclosed*** in" or "us[ing] the ***technology*** of the '494 patent." *Id.* at 21–22 (citing PO Resp. 56–57 (emphasis added by Petitioner)). Petitioner argues "[i]t is well settled that the nexus must be shown to the claim features – not simply anything in the patent specification." *Id.* at 21.

We agree with Petitioner that Patent Owner's evidence fails to demonstrate a nexus between its license agreements and claimed inventions of the '494 patent. In particular, Patent Owner fails to show that its licensing program was successful because of the merits of claims 1, 2, and 6 of the '494 patent, as opposed to, for example, other of the numerous patents in Patent Owner's licensed portfolio, business decisions to avoid litigation, prior business relationships, or for other economic reasons. To be accorded substantial weight, there must be a nexus between 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). The burden of showing that there is a nexus lies with the Patent Owner. *See Paulsen*, 30 F.3d at 1482. Although "there is a presumption of nexus for objective considerations when the patentee shows

that the asserted objective evidence is tied to a specific product and that product 'is the invention disclosed and claimed in the patent'" (*WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1339 (quoting *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997)), Patent Owner carries the burden of demonstrating that the "thing . . . that is commercially successful is the invention disclosed and claimed in the patent" (*Demaco*, 851 F.2d at 1392). Moreover, "[w]hen the thing that is commercially successful is not coextensive with the patented invention—for example, if the patented invention is only a component of a commercially successful machine or process—the patentee must show prima facie a legally sufficient relationship between that which is patented and that which is sold." *Id.* Patent Owner has not made such a showing in this case. Additionally, we agree with Petitioner that Patent Owner's reliance on the same licenses and similar arguments when asserting secondary considerations for an unrelated patent covering entirely different subject matter in Case IPR2015-01979 casts doubt on the existence of any such relationship in this case. In the absence of an established nexus with the claimed invention, secondary consideration factors are not entitled to much, if any, weight and generally have no bearing on the legal issue of obviousness. *See In re Vamco Mach. & Tool, Inc.*, 752 F.2d 1564, 1577 (Fed. Cir. 1985).

b. Other Secondary Considerations Evidence

Patent Owner additionally contends that a "long-felt but unmet need for an invention supports the non-obviousness of the inventions disclosed in the '494 Patent because there was unmet need for a network based system that generated DSP and stored it in a database, such as that disclosed in the '494 Patent." PO Resp. 60 (citing Ex. 2007 ¶¶ 176–177). According to

Patent Owner, "such long-felt need was also not met at the time of the '494 Patent application because if it had then *Swimmer* would not have thought a database system was impractical." *Id.* Further, Patent Owner contends its "ability to teach a network based system that stored DSP in a database is indicative of [Patent Owner's] recognition of the problem and [its] ability to solve that problem." *Id.* at 61.

Patent Owner further contends that, "[b]ased on *Swimmer*, skepticism existed regarding the ability to modify elements of VIDES-known at the time to be useful for evaluating computer viruses." PO Resp. 61 (citing Ex. 2007 ¶ 178). According to Patent Owner, "[t]he ability to actually create a network based system that derived DSP and stored it in a database yielded unexpected results because Swimmer did not believe that such a system was practical," and "[t]he fact that the inventions disclosed in the '494 [patent] overcame that skepticism and resulted in unexpected result of the patented invention supports the non-obviousness of inventions." *Id.*

Patent Owner contends "*Swimmer* teaches that a desire existed for practical systems that were not currently available," and "[a]s such, Swimmer teaches that others had failed to build a feasible system, demonstrating the non-obviousness of the '494 Patent." *Id.* at 62. Lastly, Patent Owner contends "[a]s discussed above, *Swimmer* explicitly teaches away from the patented invention of the '494 Patent." *Id.*

In its Reply, Petitioner submits that these additional arguments "suffer from similar deficiencies" as Patent Owner's commercial success arguments, including "a complete lack of nexus," and are "based on nothing more than . . . conclusory, circular statements about the Swimmer reference, *i.e.*, the

very prior art that [Patent Owner] is attempting to overcome with its alleged secondary considerations." Pet. Reply 22–23.

We agree with Petitioner that these additional arguments also are unpersuasive, particularly because they are based largely on assumptions regarding Swimmer with which we disagree. For the reasons stated in Section III.A.4.a.iv, *supra*, for example, we do not understand Swimmer to have "thought a database system was impractical," but, on the contrary, we conclude that Swimmer taught storage of DSP data in a database. Further, as set forth in Section III.B.4.a, *supra*, we are not persuaded by Patent Owner's contentions that Swimmer teaches away from the invention of the '494 patent, but we instead conclude that Swimmer teaches or suggests all elements of claims 1, 2, and 6. We determine that our conclusions directly undermine the premises of Patent Owner's arguments in this regard.

6. Conclusions

Patent Owner's weak evidence of secondary considerations in this case does not overcome Petitioner's strong evidence regarding the teachings of Swimmer with respect to the subject matter of claims 1, 2, and 6 of the '494 patent. Accordingly, for the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 1, 2, and 6 of the '494 patent would have been obvious to a person of ordinary skill in the art at the time of the invention over Swimmer and that those claims are, therefore, unpatentable. We also conclude, however, that Petitioner has not shown by a preponderance of the evidence that claims 5, 10, 11, 14, and 15 are unpatentable over Swimmer.

C. Patent Owner's Identification of Arguments Allegedly Exceeding Proper Scope of Petitioner's Reply

As authorized by an Order dated October 26, 2016 (Paper 37), Patent Owner filed an "Identification of Arguments Exceeding the Proper Scope of Reply" (Paper 39), identifying, by page and line numbers, twenty-one portions of Petitioner's Reply, as well as certain exhibits submitted with the Reply, that it alleges exceed the proper scope of reply. Petitioner filed a response (Paper 46), in which it identifies, for each portion of the Reply and exhibit identified by Patent Owner, citations to the Petition where it alleges the corresponding arguments previously appeared, citations to the material contained in the Patent Owner Response that it alleges triggered or caused it to include the challenged material in the Reply, or both. We have considered the parties' respective submissions in rendering this Final Written Decision, and have accorded Petitioner's Reply appropriate weight in view of Patent Owner's identifications.

D. Motion to Exclude

Patent Owner filed a Motion to Exclude with respect to Exhibits 1005, 1006, 1010, 1018, 1026, 1027, 1030–1032, 1036–1043. Paper 41 ("Mot. Excl."). Petitioner filed an Opposition to Patent Owner's Motion (Paper 48, "Opp. Mot. Excl.")), and Patent Owner filed a Reply to Petitioner's Opposition, additionally seeking to Exclude Exhibits 1044–1048 (Paper 51, "Reply Mot. Excl.").

In *inter partes* review proceedings, documents are admitted into evidence subject to an opposing party asserting objections to the evidence and moving to exclude the evidence. 37 C.F.R. § 42.64. As movant, Patent

Owner has the burden of showing that an objected-to exhibit is not admissible. 37 C.F.R. § 42.20(c).

For the reasons discussed below, the Motion to Exclude is denied-in-part and dismissed-in-part.

1. Exhibits 1005 and 1010

Patent Owner seeks to exclude Swimmer (Ex. 1005), as well as the Virus Bulletin Proceedings (Ex. 1010) to the extent the Board relies on it, on the bases that it is unauthenticated, hearsay, and irrelevant. Mot. Excl. 10–14, 10 n.3. According to Patent Owner, Petitioner failed to authenticate Swimmer as a document that was publicly available in 1995, offering no evidence of the publication date of Swimmer beyond the Hall-Ellis Declaration (Ex. 1006), which Patent Owner contends is itself inadmissible, and the dates on the face of the document itself. *Id.* at 10. Patent Owner contends that neither the September 1995 conference date nor the 1995 copyright date on Swimmer is sufficient to authenticate Swimmer or to establish the date Swimmer was available to the public (*id.* at 11), and that those dates are admissible hearsay (*id.* at 12–13). Patent Owner further contends that, because Petitioner fails to establish Swimmer was available as prior art, it should be excluded as irrelevant and because Petitioner's reliance on it would be unfairly prejudicial to Patent Owner. *Id.* at 13–14.

Petitioner responds that Patent Owner previously waived its right to object to the admissibility of Swimmer as prior art under 35 U.S.C. § 102(a), and that the evidence presented by Petitioner clearly establishes the authenticity and admissibility of Swimmer. Opp. Mot. Excl. 1. In support of the first argument, Petitioner contends that it set forth in the Petition that Swimmer is prior art under both 35 U.S.C. § 102(b), based on its

dissemination at the September 20–22, 1995, Virus Bulletin conference, and under 35 U.S.C. § 102(a), based on its being made available to the general public through the library system by December 1995. *Id.* at 2. Petitioner argues that Patent Owner objected only to Swimmer's relevance and admissibility under 35 U.S.C. § 102(b) in its Initial Objections (Paper 11), and, therefore, waived any objection to the admissibility of Swimmer under 35 U.S.C. § 102(a). *Id.* at 2–3. Regarding the second argument, Petitioner further responds that Dr. Hall-Ellis's declarations establish that Swimmer was publicly accessible in December 1995 (*id.* at 3–6), and that Patent Owner's "evidentiary" challenges to Swimmer's relevance and admissibility actually boil down to public accessibility, which is a substantive, rather than evidentiary, issue (*id.* at 6–11). In its Reply to Petitioner's Opposition, Patent Owner contends that Petitioner "[n]arrowly [r]epresents" its objections and that "Patent Owner specifically references objections relating to the Swimmer's alleged 'public accessibility as a printed publication'" in its Initial Objections. Reply Mot. Excl. 3 (citing Paper 11, 2).

As explained in Section III.B.4.a.i, *supra*, we are persuaded by Dr. Hall-Ellis's testimony that Swimmer was publicly available at least as early as December 1995 and is, accordingly, prior art at least under 35 U.S.C. § 102(a),[6] as well as that Exhibit 1005 represents an authentic

[6] As further mentioned in Section II.B, *supra*, we determined in our Decision on Institution in Case IPR2016-00159 that the '494 patent is not entitled to any earlier priority date than the November 6, 1997, filing date of the '388 application, based on the record then before us in that case. *See* IPR2016-00159, slip op. at 10–13 (PTAB May 13, 2016) (Paper 8). Because that date is more than one year after December 31, 1995, Swimmer would also be prior art under 35 U.S.C. § 102(b) based on the December 1995 publication date.

copy of Swimmer and Exhibit 1010 represents an authentic copy of the Virus Bulletin Proceedings within the meaning of Federal Rule of Evidence 901. Further, Federal Rule of Evidence 401 provides that evidence is relevant if "it has any tendency to make a fact more or less probable than it would be without the evidence" and "the fact is of consequence in determining the action." Both the Federal Circuit and the Board have recognized that there is a "low threshold for relevancy." *See, e.g.*, *OddzOn Prods., Inc. v. Just Toys, Inc.*, 122 F.3d 1396, 1407 (Fed. Cir. 1997); *Laird Techs., Inc. v. GrafTech Int'l Holdings, Inc.*, Case IPR2014-00025, slip op. at 44 (PTAB Mar. 25, 2015) (Paper 45). There is no question on this record that Swimmer is relevant to the patentability of the challenged claims in this case. Accordingly, we deny Patent Owner's Motion to Exclude as to Exhibits 1005 and 1010.

2. Exhibits 1006, 1018, 1026, 1027, 1030–1032, and 1036–1043

Patent Owner seeks to exclude the Declaration of Dr. Hall-Ellis (Ex. 1006) and the Declarations of Dr. Davidson (Ex. 1018; Ex. 1027) on the basis that the opinions contained therein are "conclusory" and "unreliable." Mot. Excl. 5–10. Patent Owner also seeks to exclude Dr. Davidson's Reply Declaration (Ex. 1027), Dr. Hall-Ellis's Supplemental Declaration (Ex. 1037), the Declarations of Dr. Ford (Ex. 1038) and Mr. Kiegel (Ex. 1041), and certain exhibits cited in those declarations (Exs. 1026, 1030–1032, 1036, 1039, 1040), as belated and constituting improper reply evidence. Mot. Excl. 1–5. Patent Owner specifically points to paragraphs 18, 19, 27, 28, 33, 39, 40, 46, 63, and 98 of Exhibit 1027 and Exhibits 1030, 1032, and 1042 as "improper new evidence belatedly introduced in a Reply." *Id.* at 3.

Patent Owner's arguments concerning Exhibits 1006 and 1018 concern the weight that we should accord to those exhibits, rather than their admissibility, and are not the proper subject of a motion to exclude. *See* Opp. Mot. Excl. 11–12 & n.7. As explained in *Laird Technologies Inc. v. GrafTech International Holdings, Inc.*, Case IPR2014-00025 (PTAB Mar. 25, 2015) (Paper 45), "[a] motion to exclude . . . is not an appropriate mechanism for challenging the sufficiency of evidence or the proper weight that should be afforded an argument." Case IPR2014-00025, slip op. at 42 (Paper 45). Moreover, "[o]ur general approach for considering challenges to the admissibility of evidence was outlined in *Corning Inc. v. DSM IP Assets B.V.*, Case IPR2013-00053, slip op. at 19 (PTAB May 1, 2014)," which stated that, "similar to a district court in a bench trial, the Board, sitting as a non-jury tribunal with administrative expertise, is well-positioned to determine and assign appropriate weight to evidence presented." *Id.* (citing *Donnelly Garment Co. v. NLRB*, 123 F.2d 215, 224 (8th Cir. 1941) ("One who is capable of ruling accurately upon the admissibility of evidence is equally capable of sifting it accurately after it has been received . . . .")). Accordingly, we deny Patent Owner's Motion to Exclude as it relates to each of those exhibits.

Patent Owner's arguments with regard to the remaining challenged exhibits relate to the timeliness of Petitioner's citation to them, and, as such, also concern the weight that we should accord to them, rather than their admissibility. Notably in that regard, we do not rely in this Decision on any of paragraphs 18, 19, 27, 33, 39, 40, 46, 63, and 98 of Exhibit 1027 or on Exhibits 1030, 1032, and 1042 that that Patent Owner has identified as including "improper new evidence." *See* Mot. Excl. 3–4. Further, because

we credit Dr. Hall-Ellis's testimony in her initial declaration as sufficient to establish, at minimum, that Swimmer was publicly available no later than December 1995 (Ex. 1006 ¶¶ 3, 6–12, 18–20), we need not rely on Exhibits 1026 and 1037–1041. Accordingly, we dismiss as moot Patent Owner's Motion to Exclude as it relates to the cited paragraphs of Exhibit 1027 and to Exhibits 1026, 1030, 1032, and 1037–1042. As referenced in Section III.B.4.a.iv, *supra*, we credit Dr. Davidson's testimony at paragraph 28 of Exhibit 1027 (citing Exhibit 1031, 6) as responding to Patent Owner's contention that Swimmer does not contain a "database schema." *See* PO Resp. 38. Because we find that testimony merely reinforces Dr. Davidson's testimony submitted with the Petition (*see, e.g.*, Ex. 1018 ¶¶ 107–108) and the statement in the Petition that Swimmer's audit records are "organized based on a particular schema" (Pet. 19), and does not change the theory on which *inter partes* review was granted, we disagree with Patent Owner's assertion that reliance thereon is improper (*see* Mot. Excl. 4). Accordingly, we deny Patent Owner's Motion to Exclude as it relates to paragraph 28 of Exhibit 1027, Exhibit 1031, and Exhibit 1043 (MARC record corresponding to Exhibit 1031).

3. Exhibits 1044–1048

In its Reply to Petitioner's Opposition, Patent Owner argues for the first time that Exhibits 1044–1048 also should be excluded. Reply Mot. Excl. 4–5. Because we do not rely on those exhibits in this Decision, we also dismiss as moot Patent Owner's Motion to Exclude as it relates to those exhibits.

4. Conclusion

For the foregoing reasons, Patent Owner's Motion to Exclude is denied-in-part, as to Exhibits 1005, 1006, 1018, 1027 (¶ 28), 1031, and 1043, and dismissed-in-part, as to Exhibits 1026, 1027 (¶¶ 18, 19, 27, 33, 39, 40, 46, 63, 98), 1030, 1032, 1036–1042, and 1044–1048.

E. Motion for Observations

Patent Owner filed a Motion for Observations regarding Dr. Davidson's cross-examination. Paper 42 ("Obs."). Petitioner, in turn, filed a Response to Patent Owner's Observations. Paper 47 ("Obs. Resp."). To the extent Patent Owner's Motion for Observations pertains to testimony purportedly impacting Dr. Davidson's credibility, we have considered Patent Owner's observations and Petitioner's Response in rendering this Final Written Decision, and accorded Dr. Davidson's testimony appropriate weight in view of Patent Owner's observations. *See* Obs. 1–8; Obs. Resp. 1–11.

IV. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, and 6 of the '494 patent are unpatentable under 35 U.S.C. § 103(a) over Swimmer. Petitioner has not demonstrated that claims 5, 10, 11, 14, and 15 are unpatentable over Swimmer.

V. ORDER

Accordingly, it is

ORDERED that claims 1, 2, and 6 of the '494 patent have been shown to be unpatentable;

FURTHER ORDERED that claims 5, 10, 11, 14, and 15 of the ’494 patent have not been shown to be unpatentable;

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

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