

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ACTIFIO, INC.,
Petitioner,

v.

DELPHIX CORP.,
Patent Owner.

Case IPR2015-00052
Patent 8,548,944 B2

Before HOWARD B. BLANKENSHIP, KARL D. EASTHOM, and
MINN CHUNG, *Administrative Patent Judges*.

BLANKENSHIP, *Administrative Patent Judge*.

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

I. BACKGROUND

Petitioner, Actifio, Inc., filed a request for an *inter partes* review of claims 1, 8, 11, 14–16, 18, and 20 of U.S. Patent No. 8,548,944 B2 (Ex. 1101, “the ’944 patent”) under 35 U.S.C. §§ 311–319. Paper 1 (“Petition” or “Pet.”). The Board instituted an *inter partes* review of claims 1, 8, 11, 14–16, 18, and 20 on asserted grounds of unpatentability for obviousness. Paper 9 (“Dec. on Inst.”).

Subsequent to institution, Patent Owner, Delphix Corp., filed a patent owner response. Paper 21 (“PO Resp.”). Petitioner filed a reply. Paper 25 (“Pet. Reply”).

Patent Owner filed a Motion to Exclude Evidence (Paper 38; “PO Mot. to Exclude”). Petitioner filed an Opposition to the Motion to Exclude (Paper 42; “Pet. Exclude Opp.”), and Patent Owner filed a Reply (Paper 44; “PO Exclude Reply”).

An oral hearing concerning this case and several other *inter partes* reviews in which the parties are involved was held on January 14, 2016. The record contains a transcript of the hearing (Paper 56).

The Board has jurisdiction under 35 U.S.C. § 6(c). 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, 8, 11, 14–16, 18, and 20 of the ’944 patent are unpatentable.

A. *Related Proceedings*

According to Petitioner, the ’944 patent is involved in the lawsuit *Delphix Corp. v. Actifio, Inc.*, No. 5:13-cv-04613-BLF (N.D. Cal.). Pet. 2.

The '944 patent is also the subject of Case IPR2015-00050 (PTAB Oct. 8, 2014).

B. The '944 Patent

The '944 patent relates to backing up and restoring file systems. File system backups are performed by copying information describing changes in the file system since a previous point in time. To restore data, a virtual restored file system (VRFS) structure is created corresponding to a snapshot of data copied from the file system that is stored in the backup file system. Ex. 1101, Abstract. The VRFS structure points at data blocks copied at various points in time. *Id.* at col. 1, ll. 40–42. Upon request, the backup system generates a virtual restored file system by linking a set of files to stored data blocks of the storage system and mounting the set of files on the target system. *Id.* at col. 1, ll. 57–62.

C. Illustrative Claim

Claim 1, reproduced below, is illustrative.

1. A method for performing backup of file systems, the method comprising:

receiving data blocks for a plurality of point-in-time copies of a source file system, each point-in-time copy of the source file-system obtained by extracting data blocks from the source file-system that changed since a previous point-in-time copy was extracted, the source file system comprising at least a source file;

storing the data blocks on a storage system, the stored data blocks comprising one or more versions of a data block, each version corresponding to a point-in-time copy;

receiving a request to restore information obtained from the source file system for a target system; and

responsive to receiving the request to restore, creating a virtual restored file system comprising a set of files including a restored file corresponding to the source file, the creating comprising:

linking the restored file to a plurality of the data blocks stored on the storage system, the plurality of data blocks comprising at least a first data block associated with a first point in time copy and a second data block associated with a second point in time copy, and

mounting the set of files to the target system to allow the target system to access the set of files, the mounted set of files comprising the virtual restored file system.

D. Asserted Prior Art

Fair et al., US 7,334,095 B1, issued Feb. 19, 2008 (“Fair”). Exhibit 1106.

Edwards et al., “*FlexVol: Flexible, Efficient File Volume Virtualization in WAFL*,” June 22–27, 2008, PROCEEDINGS OF THE ANNUAL TECHNICAL USENIX CONFERENCE (“Edwards”). Exhibit 1104.

Patterson et al., “*SnapMirror®: File System Based Asynchronous Mirroring for Disaster Recovery*,” PROCEEDINGS OF THE FAST 2002 CONFERENCE ON FILE AND STORAGE TECHNOLOGIES, Jan. 28–30, 2002 (“Patterson”). Exhibit 1105.

NetApp Inc., *SnapManager® 5.0 for Microsoft® SQL Server®*, Oct. 2008 (“SM Guide”). Exhibit 1103.

E. Asserted Grounds of Unpatentability

We instituted *inter partes* review on the following grounds of unpatentability under 35 U.S.C. § 103(a):

References	Claim(s)
SM Guide, Edwards, and Patterson	1, 8, 11, 14, 15, 18, and 20
SM Guide, Edwards, Patterson, and Fair	16

II. ANALYSIS

A. Patent Owner's Motion to Exclude Evidence

In *inter partes* reviews, 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 Exhibit is not admissible. 37 C.F.R. § 42.20(c).

Patent Owner moves to exclude Petitioner's Exhibits 1103, 1118, 1121, 1126, 1128, 1129, 1131, 1132, 1134–1141, 1144, 1145, and 1147, all of which except Exhibit 1103 were filed with Petitioner's Reply. PO Mot. to Exclude 1.

As Patent Owner notes, however, Petitioner does not rely on Exhibits 1121, 1129, 1131, 1134, 1135, 1136, 1137, or 1138. *Id.* at 1 n.1. Further, Petitioner has moved, unopposed, to expunge Exhibit 1126 (*see* Paper 35), which motion we hereby grant. Of the other objected-to Exhibits, except for Exhibits 1103, 1118, and 1144, we do not, and need not, consider such evidence in connection with the Reply. We determine, for reasons set forth below, that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims are unpatentable, without need for Petitioner's

additional arguments or evidence in relation to those additional Exhibits. Of the objected-to Exhibits, our Final Written Decision discusses and relies on only Exhibits 1103, 1118, and 1144. Accordingly, Patent Owner's motion to exclude Exhibits 1121, 1126, 1128, 1129, 1131, 1132, 1134–1141, 1145, and 1147 is *dismissed* as moot.

“Exhibit 1103 is allegedly a user manual for a NetApp product which Petitioner relies upon for its prima facie case of obviousness.” PO Mot. To Exclude 1–2. Patent Owner moves to exclude the Exhibit (SM Guide) as not being authenticated pursuant to Federal Rule of Evidence 901. *Id.*

Petitioner provides reasons why it contends SM Guide is self-authenticating under Rule 902. Pet. Exclude Opp. 12–13. However, a document may be authenticated by “the appearance, contents, substance, internal patterns, or other distinctive characteristics of the item, taken together with all the circumstances.” Fed. R. Evid. 901(b)(4). Petitioner submits:

The cover page includes NetApp's company address, telephone number, website, and email address for providing comments to NetApp about the documents. Indeed, the website and email address on Ex. 1103 are hyperlinked, and clicking on them directly links a user to NetApp's website or opens an email addressed to NetApp respectively. Further, the SnapManager Guide contents include repeated references to NetApp and various NetApp technologies. Ex. 1103 at 024 (“This guide refers to all NetApp storage products”).

Pet. Exclude Opp. 13. Moreover, Petitioner points out testimony that is sufficient to authenticate the document pursuant to Rule 901(b)(1). Pet. Exclude Opp. 13–14.

We, therefore, are not persuaded that SM Guide is not authenticated at least under Federal Rules of Evidence 901(b)(1) and 901(b)(4). On this record, we accept Exhibit 1103 for what it purports and is alleged to be: “a user manual for a NetApp product.” PO Mot. To Exclude 1.

Patent Owner’s motion to exclude Exhibit 1103 is *denied*.

Exhibit 1118 is the Declaration of Louis Hernandez. Patent Owner’s motion does not specify the basis for any evidentiary objection to the Exhibit.

Patent Owner’s motion to exclude Exhibit 1118 is *denied*.

Exhibit 1144 is the Supplemental Declaration of Louis Hernandez. Patent Owner argues that the Exhibit is “inadmissible hearsay.” PO Mot. to Exclude 6–9. The Supplemental Declaration, however, consists of statements made by the Declarant while testifying in this proceeding — not “hearsay” (Fed. R. Evid. 801(c)) — but sworn testimony that is subject to cross-examination. Indeed, Patent Owner cross-examined Mr. Hernandez with respect to that testimony.

Patent Owner’s motion to exclude Exhibit 1144 is *denied*.

B. Printed Publication — SM Guide

Patent Owner in its Response contests that SM Guide is a prior art “printed publication” in accordance with 35 U.S.C. §§ 102 and 311(b). We look to the underlying facts to make a legal determination as to whether a document is a printed publication. *Suffolk Techs., LLC v. AOL Inc.*, 752 F.3d 1358, 1364 (Fed. Cir. 2014). The determination of whether a document is a “printed publication” under 35 U.S.C. § 102(b) involves a case-by-case inquiry into the facts and circumstances surrounding its disclosure to

members of the public. *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004). Public accessibility is a key question in determining whether a document is a printed publication and is determined on a case-by-case basis. *Suffolk Techs.*, 752 F.3d at 1364. To qualify as a printed publication, a document “must have been sufficiently accessible to the public interested in the art.” *In re Lister*, 583 F.3d 1307, 1311 (Fed. Cir. 2009).

Initially, we note our disagreement with Patent Owner’s contention that Petitioner cannot rely upon evidence not submitted with the Petition to show that SM Guide is prior art. PO Resp. 3–5. In Patent Owner’s view, Petitioner must make out a *prima facie* case of unpatentability in its Petition, which includes the substantive element of SM Guide being publicly accessible and prior art. *Id.* at 4. That position, however, does not account for the difference between the threshold for instituting a trial (35 U.S.C. § 314(a)) and that for proving unpatentability of a claim in trial (35 U.S.C. § 316(e)). As noted by our reviewing court, “there is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial.” *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (quoting 35 U.S.C. § 314(a) and comparing § 316(e)).

Based on the information presented in the Petition and Patent Owner’s Preliminary Response (Paper 8) we determined there was a reasonable likelihood that Petitioner would prevail in its challenges that included SM Guide. Dec. on Inst. 13; *see* 35 U.S.C. § 314(a) (threshold for instituting *inter partes* review); *see also* 37 C.F.R. § 42.108(c) (“The Board’s decision [on Institution] will take into account a patent owner preliminary response where such a response is filed.”). Patent Owner did not challenge the prior

art status of any of the applied patents or publications in its Preliminary Response. Patent Owner, in fact, stated that it had “disclosed to the Patent Office every NetApp feature that Petitioner now cites in the Petition.” Paper 8, 22. We do not mean to suggest that a patent owner must raise any “printed publication” issues in a preliminary response in order for the Board to consider such issues in the preliminary proceeding phase. In this case, however, based in part on the information in Patent Owner’s Preliminary Response and in part on the printed dates and the lack of indicia of confidentiality or internal, non-public distribution in SM Guide, we determined that Petitioner had met its burden for a threshold showing to proceed to trial.

Patent Owner also argues that Petitioner cannot rely on two Declarations in its Reply. PO Resp. 2. The Declarations are provided by Louis Hernandez (Ex. 1118) and Joseph Ortiz (Ex. 1126).¹ Patent Owner submits that Petitioner provided Patent Owner with the Hernandez Declaration in response to Patent Owner’s objections to evidence (although Patent Owner does not tell us its basis for the objections). Our rules authorize serving supplemental evidence in response to an objection. 37 C.F.R. § 42.64(b)(2). Patent Owner lacks a foundation to complain that evidence has been produced in response to its objections. Petitioner also relies, properly, on the supplemental evidence in its Reply, as evidence in reply to Patent Owner’s arguments in its Response that SM Guide is not a printed publication.

¹ Exhibit 1126 is expunged at Petitioner’s request. We do not further discuss the Exhibit.

Turning to the substance of Exhibit 1118, Mr. Hernandez testifies that he is currently employed by Petitioner, was employed by NetApp from 2004 to 2009, and was a NetApp customer from 2000 to 2004. Ex. 1118 ¶¶ 1, 2, 4. Mr. Hernandez testifies further that for most of his time at NetApp, as a Systems Engineer, he was responsible for marketing NetApp’s products and services to numerous customers, prospective customers, business partners, and/or alliances. *Id.* ¶ 3. “During the 2000-2009 time-frame, to support its marketing efforts, it was NetApp’s standard practice to publish technical reports, white papers, and product manuals or guides to customers, potential customers, business partners, and alliances.” *Id.* ¶ 6. “These documents were published, according to standard practice, as of the month and year that appeared on the face of the documents.” *Id.* Mr. Hernandez testifies that he has personal knowledge of and recognizes SM Guide, and that it was published during his tenure at NetApp. *Id.* ¶¶ 7, 13.

Patent Owner argues Mr. Hernandez does not declare that SM Guide was “publicly accessible.” PO Resp. 2–3. Patent Owner submits:

Even if it was NetApp’s “standard practice” to provide its documents to its “customers, potential customers, business partners and alliances,” that does not establish that these documents were available to *the public*, but instead shows at most that they were only available to a subset of entities affiliated with NetApp.

Id. at 3.

Petitioner replies with a Supplemental Declaration from Mr. Hernandez. Pet. Reply 6–7. Mr. Hernandez testifies that he uses the term “publish” or “published” as referring to documents being publicly distributed to customers, potential customers, business partners, and

alliances as of the month and year that appeared on the face of the documents, non-confidentially. Ex. 1144 ¶ 5. According to Declarant, NetApp had more than two hundred Systems Engineers and other sales personnel during the relevant timeframe (*id.* ¶ 4) and that technical reports, white papers, product manuals, and product guides were freely distributed to support its marketing efforts (*id.* ¶ 7). Mr. Hernandez testifies further that it was important for NetApp to date the documents accurately so that customers and potential customers could understand if a specific document accurately reflects features for specific versions of NetApp's products or if a document was outdated or updated to reflect more current features. *Id.* ¶ 10. Further, Petitioner provides evidence that by 2007 there were more than 94,000 NetApp systems deployed and the company had thousands of customers in 138 countries. Pet. Reply 7; Ex. 1146, 1, 2, 4.²

As part of routine discovery (37 C.F.R. § 42.51(b)(1)(ii)), Patent Owner had the opportunity to cross-examine Mr. Hernandez during Patent Owner's first discovery period but elected not to. Patent Owner cross-examined Mr. Hernandez in its second discovery period regarding the testimony in his Supplemental Declaration. We have considered Patent Owner's Motion for Observation on Cross-Examination Testimony of Mr. Hernandez (Paper 39) and Petitioner's Response (Paper 43), insofar as they relate to public accessibility of SM Guide. We acknowledge the potential for bias in Mr. Hernandez's testimony as a present employee of Petitioner. We find, however, the testimony in Mr. Hernandez's Declarations as to

² We find that Exhibit 1046, a NetApp Form 10-K SEC filing, was properly submitted by Petitioner as evidence in rebuttal to Patent Owner's public accessibility challenge in its Response.

public accessibility of SM Guide to be credible. SM Guide purports to be an installation and administration guide for commercially available software. *See, e.g.*, Ex. 1103, 1–3. As an earlier panel of the Board has found, a dated technical document, having no indication of being a mere draft or an internal paper, is “a type of document whose very purpose is public disclosure.” *Veeam Sw. Corp. v. Symantec Corp.*, Case IPR2014-00089, slip op. at 14 (PTAB Apr. 25, 2014) (Paper 9).

“A given reference is ‘publicly accessible’ upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.” *SRI Int’l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008) (quoting *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378 (Fed. Cir. 2006)). In view of the foregoing considerations, we find that Petitioner has established, by a preponderance of the evidence, that SM Guide (dated Oct. 2008) was available to the interested public at least more than one year before July 15, 2010, the earliest possible priority date of the ’944 patent. *See* Ex. 1101, at (60). Therefore, on this record, SM Guide is a printed publication under 35 U.S.C. § 102(b).

C. Claim Interpretation

In an *inter partes* review, the Board construes claim terms in an unexpired patent using their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 890

(mem.) (2016). There is a presumption that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). The “ordinary and customary meaning” is that which the term would have to a person of ordinary skill in the art in question. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Only those terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). In reaching our determinations in this Decision, we do not find construction of any terms necessary.

D. Asserted Grounds of Unpatentability

1. Section 103(a) — SM Guide, Edwards, and Patterson

Petitioner applies the teachings of SM Guide, Edwards, and Patterson in an asserted ground of obviousness as to claims 1, 8, 11, 14, 15, 18, and 20. Pet. 26–56.

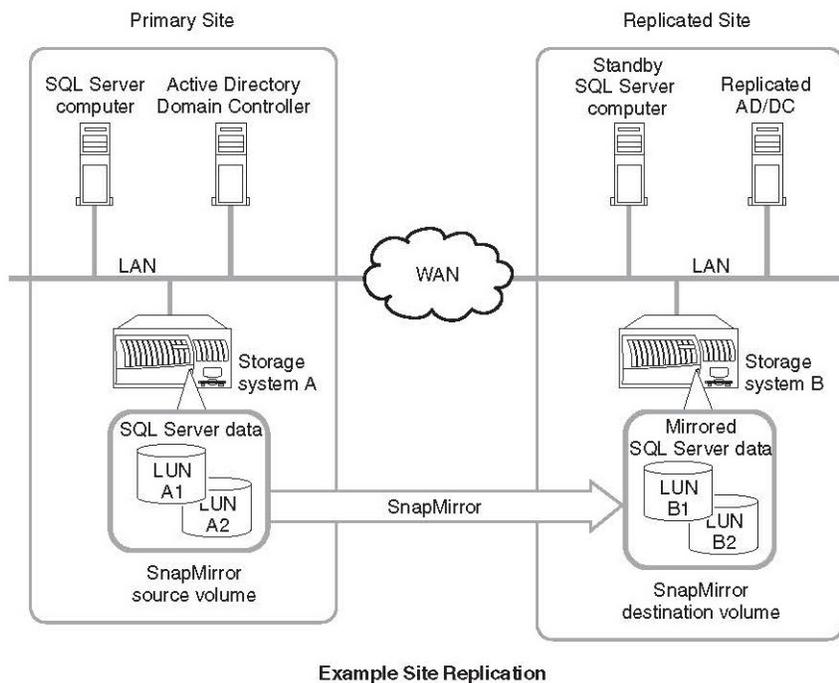
2. SM Guide

SM Guide is a guide for installing SnapManager® 5.0 for Microsoft SQL Server® software. Ex. 1103, xii.³ The guide describes operations including data management, data archival for long-term or remote storage of backups, and data replication for disaster recovery operations. *Id.* The guide further describes replicating a database backup set to a destination

³ Hereafter, page numbers for SM Guide, Edwards, and Patterson refer to original page numbers.

system using SnapMirror. *Id.* at 268–72; Ex. 1115 ¶¶ 58–60 (Declaration of Erez Zadok).

The Figure from SM Guide at page 291 is reproduced below.



The Figure illustrates a primary site having Storage system A with SQL Server data LUN A1, LUN A2 (SnapMirror source volume) and a remote replicated site with Storage system B with Mirrored SQL Server data LUN B1, LUN B2. In the event of destruction of the data at the primary site, a SQL Server environment can be re-created on the replicated site. Ex. 1103, 291.

3. Edwards

Edwards further describes the SnapManager system as disclosed by SM Guide, and provides more explanation about the use of volumes and

files to manage data. A volume essentially comprises a file system that points to and uses underlying data storage on storage disks:

[A] FlexVol volume is a file system created *within* a file on an underlying system. A hidden file system spans a pool of storage, and we create externally visible volumes inside files on this file system. This introduces a level of indirection, or virtualization between the logical storage space used by a volume and the physical storage space provided by the RAID subsystem.

Ex. 1104, 131. “Conceptually, we wanted to aggregate many disks into a large storage container and allow administrators to create volumes by carving out arbitrarily sized logical chunks of this volume.” *Id.* “[W]e virtualize the allocation of volumes on physical storage, allowing multiple, independently managed file volumes, along with their Snapshot copies, to share the same storage.” *Id.* at 130. “Virtualization is a well-known method of abstracting physical resources and of separating the manipulation and use of logical resources from their underlying implementation.” *Id.* at 129. “By separating the management of file systems from the management of physical storage resources, these systems make it easier to create, destroy, and resize file systems, as these operations can be performed independent of the underlying storage.” *Id.* “The resulting virtual file volumes, or FlexVol® volumes, are managed independent of lower storage layers.” *Id.*

Edwards explains that “writable Snapshot copies [are] []called *Flexclone volumes*.” *Id.* at 130. *Id.* A clone volume “inherits pointers to the complete file system image stored in the original Snapshot copy” of an original FlexVol volume. *Id.* at 135. “The only differences between a Snapshot copy and the live file system are the blocks that have been

modified since the Snapshot copy was created (and the metadata that points to them).” *Id.* at 131.

“WAFL [Write Anywhere File Layout] Snapshot copies provide consistent point-in-time copies of a volume.” *Id.* at 134. But, a Snapshot copy is read-only. *Id.* Therefore, “[v]olume cloning creates a FlexVol volume in which the active file system is a logical replica of a Snapshot copy in a different FlexVol volume within the same aggregate.” *Id.* To copy a volume, the system transfers metadata blocks that contain block pointers. *See id.* at 130–31.

Edwards explains that “[c]reating a clone volume is a simple process.” *Id.* at 135. A container file for the new clone volume (or FlexClone volume) is created and seeded “with a vol_nfo block that is a copy of the vol_info block of the Snapshot copy on which the clone is based.” *Id.* Because vol_info block is the root of the “tree of blocks that form the Snapshot copy, the clone inherits pointers to the complete file system image stored in the original Snapshot copy.” *Id.* “[T]he clone does not actually own the blocks it has inherited from the parent, [and] it does not have those blocks in its container files.” *Id.* Nevertheless, the system may create new copies of any blocks shared with the parent in order to sever the connection between the parent and clone. *Id.*

E. Asserted Obviousness over SM Guide, Edwards, and Patterson

As we noted, Petitioner applies the teachings of SM Guide, Edwards, and Patterson in an asserted ground of obviousness as to claims 1, 8, 11, 14, 15, 18, and 20. Petitioner points to specific disclosures in the prior art that are deemed to describe or teach all claim limitations. Pet. 26–56.

We find that the Petition provides ample reasons why one of ordinary skill in the art would have combined the teachings of SM Guide, Edwards, and Patterson. Pet. 21–23. For example, all the references address the problem of reducing the time to restore a backup copy of an organization’s file system. Pet. 21 (citing Declaration of Erez Zadok, Ex. 1115 ¶ 93). Sanders, Edwards and Patterson all address the problem using the same solution — virtual file systems. *Id.* (citing Ex. 1115 ¶ 95–97). SM Guide and Edwards teach creating virtual file systems use the same underlying NetApp technologies: Snapshot, SnapMirror, and FlexClone technologies incorporated into the Data ONTAP operating system. Pet. 22–23 (citing Ex. 1115 ¶¶ 95–97). Moreover, Edwards expressly refers to the earlier Patterson reference for details relating to how to use SnapMirror for replication. Pet. 22, 35; Ex. 1104, 133, 142.

F. Patent Owner’s Response

Patent Owner in its Response argues that the Petition fails to show that several limitations in the claims are found in the applied prior art. We consider each of those arguments in turn.

1. Receiving of Data Blocks for a Plurality of Point-In-Time Copies of a Source File System

The Petition points to SM Guide’s teachings regarding using SnapMirror to replicate backups of a server database on a remote storage system. Pet. 27–28 (citing Ex. 1115 ¶¶ 132–134). For the details of SnapMirror replication, Petitioner turns to Patterson. *Id.* at 28–29. Patterson teaches that SnapMirror replicates a source volume onto a destination

volume using snapshot transfers. Ex. 1105, 121. A “snapshot” is a consistent image of the file system. *Id.* When a SnapMirror relationship is initiated by the destination, an initial “base reference snapshot” is transferred onto the destination. *Id.* Periodically, SnapMirror reflects changes in the source volume to the destination volume, replicating the source at a block level, but limiting transfers to blocks that are new or modified and still allocated in the file system. *Id.* at 120. Each time SnapMirror updates the destination, it takes a new snapshot of the source volume. *Id.* Because the source snapshots always contain a self-consistent, point-in-time image of the entire volume or file system, and these snapshots are applied to the destination, the destination always contains a self-consistent, point-in-time image of the volume. *Id.*

Patent Owner argues that the NetApp storage system does not disclose or render obvious the claimed receiving of “data blocks for [a] plurality of point-in-time copies of a source file system.” PO Resp. 24. According to Patent Owner, NetApp (specifically, SnapMirror) is a mirroring method for disaster recovery of physical storage, where the source file system and backup “mirror” are always maintained in the identical current state. *Id.* (citing Declaration of Dr. Prashant Shenoy, Ex. 2110 ¶ 70). Patent Owner submits further that the SnapMirror “mirror only represents what is maintained by the source system and does not store different point-in-time copies of the source.” *Id.* at 25 (citing Ex. 2110 ¶ 70).

Patent Owner acknowledges, however, that the Petition relies on SnapMirror’s base reference and incremental reference snapshots created by the source system as the plurality of point-in-time copies of the source. *Id.* at 26. Patent Owner argues that the snapshots are never transferred to or

received by a destination, and thus cannot be the received data blocks for a plurality of point-in-time copies of a source file system. *Id.* at 27. “[T]hese temporary snapshots are created at the *source*, for use by the *source* and are not transferred to or stored at the destination.” *Id.* at 26 (citing Ex. 2110 ¶¶ 58–61, 73–74). Patent Owner does not indicate why it refers to the snapshots as “temporary,” but states that the snapshots “created and used during the SnapMirror processes” are never transferred to or received at the destination. *Id.* at 27. As Petitioner explains, however, the record is replete with evidence that establishes that baseline and incremental copies are transferred to and received at the destination. Pet. Reply 8–12.

Patent Owner argues, further, that the claims require that the received point-in-time copies are obtained by extracting data blocks from the source file-system that changed since a previous point-in-time copy was extracted. PO Resp. 27. Patent Owner acknowledges that, after initialization, “in its next syncing operation, SnapMirror will send all data blocks that have changed since the last update including any newly-created snapshots.” *Id.* at 28. According to Patent Owner, “[i]f there are new snapshots they represent the state of the source file system when they were created, not when they are mirrored to the destination.” *Id.* at 28–29 (citing Ex. 2110 ¶¶ 58–61, 74–76). “That is, they are not a point-in-time copy of the source file system as it exists when the data blocks are ‘extracted.’” *Id.* at 29. We agree with Petitioner (Pet. Reply 11–12), however, that although the claims require a “plurality of point-in-time copies of a source file system,” nothing in the claims requires that the point-in-time copies be with respect to the source file system as it exists when the copies are mirrored to the destination or when the data blocks are extracted.

2. Create a Virtual Restored File System

Patent Owner argues that the claims require the creation of a set of files for a virtual restored file system. PO Resp. 29–30. Patent Owner submits that Petitioner relies on SM Guide and Edwards for creating a FlexClone volume of a stored snapshot. *Id.* at 30. Specifically, Petitioner relies on “the step in which a ‘container file for the new clone volume is created and seeded “with a vol_info block that is a copy of the vol_info block of the snapshot copy on which the clone is based.”” *Id.* (quoting Pet. 31–32). According to Patent Owner, this “container file” is not a newly created set of files. *Id.* “As illustrated in Edwards, this new ‘container file’ is merely a copy of the ‘vol_info’ block of the volume to be cloned; no new set of files is created. Every file in the cloned volume existed prior to the creation of the clone itself.” *Id.* at 30–31 (citing Ex. 2110 ¶¶ 78–81) (internal citation deleted).

Petitioner responds, however, that Edwards teaches that FlexClone creates a new “FlexVol volume,” which is “a file system created *within* a file on an underlying file system.” Pet. Reply 12–13 (quoting Ex. 1104, 131). Thus, “cloning a volume containing files creates a new FlexVol volume with a new file system comprising a new set of files.” *Id.* at 13 (citing Pet. 31–33, Ex. 1115 ¶¶ 149–155, Ex. 1133 ¶¶ 18–22).⁴ We observe that the claims require creating a “virtual restored file system,” not creating new “files.”

⁴ Patent Owner does not submit that any cross-examination testimony of Dr. Zadok is relevant to this declaration testimony (Ex. 1133 ¶¶ 18–22). *See* Paper 40, Patent Owner Motion for Observation on Cross-Examination Testimony of Dr. Erez Zadock (“Mot. Obs. Zadock”).

See PO Resp. 29 (quoting claim language). As Petitioner notes (Pet. Reply 13), the '944 patent teaches that its virtual restored file system structure can be implemented by creating a new file structure that points to existing structures. The patent teaches that “a read write file structure is created 730 [Fig. 7] by making storage efficient copy of data blocks. For example, the file structure may include pointers to blocks of data stored in backup file system 210.” Ex. 1101, col. 10, ll. 48–51.

3. Linking the Restored File to a Plurality of the Data Blocks Stored on the Storage System

Patent Owner argues that each of the independent claims requires that, responsive to receiving the request to restore, creating “a virtual restored file system comprising a set of files,” wherein “creating the files comprises ‘linking the restored file to a plurality of data blocks,’ one of which is associated with ‘a first point-in-time copy’ and another of which is associated with ‘a second point-in-time copy.’” PO Resp. 31–33. According to Patent Owner, when a clone is created in NetApp, the files themselves already exist and are merely pointed to by the new vol_info block. *Id.* at 34 (citing Ex. 2110 ¶¶ 64–66, 77–81, and 85–86). Patent Owner submits that any linking of files to the data blocks of the file system is in place on the destination before the clone is created and thus is not created “responsive to receiving the request to restore.” *Id.* “No linking of a file to data blocks is performed when the clone is created.” *Id.*

Petitioner responds that, in Edwards, upon cloning a snapshot, a new file structure (the vol_info block) is created that includes pointers to existing structures of snapshot copies. Pet. Reply 16. New files are created

(including a restored file) by pointing or linking to the blocks of the snapshot copies. *Id.* (citing Ex. 1133 (Supplemental Declaration of Dr. Zadok) ¶ 24).⁵ Moreover, as noted by Petitioner (*id.* at 13) and *supra* (§ II.F.2), the '944 patent teaches that its virtual restored file system structure can be implemented in the same way.

4. Creating a Second Virtual Restored File System (Dependent Claims 8 and 15)

Patent Owner argues that dependent claims 8 and 15 require the creation and mounting of a “second virtual restored file system” in addition to the first virtual restored file system of base claim 1 and linking the second restored file to a second plurality of stored data blocks, with the second plurality of data blocks distinct from the first plurality of blocks. PO Resp. 35. Patent Owner acknowledges that Petitioner points to cloning of the base reference snapshot disclosed in Patterson. *Id.* Patent Owner argues, however, that “as explained above, the base reference snapshot is a temporary snapshot that only exists on the *source* system and, thus, cannot be cloned on the SnapMirror destination.” *Id.*

As Petitioner notes (Pet. Reply 17), however, Patent Owner’s argument is based on the incorrect contention that the base reference snapshot exists only on the source system. The record is replete with evidence that establishes, in addition to incremental snapshot copies being

⁵ Patent Owner does not submit that any cross-examination testimony of Dr. Zadok is relevant to this declaration testimony (Ex. 1133 ¶ 24). *See* Mot. Obs. Zadok.

transferred to and received at the destination, a base reference snapshot from the source system is received at the destination system. Pet. Reply 8–12.

5. Conclusion

Therefore, based on the foregoing, we find that Petitioner has established by a preponderance of the evidence that the subject matter of claims 1, 8, 11, 14, 15, 18, and 20 would have been obvious over SM Guide, Edwards, and Patterson.

G. Remaining Asserted Grounds

In our Scheduling Order (Paper 10, 3), we cautioned Patent Owner that any arguments for patentability not raised in the response will be deemed waived. Patent Owner has elected not to respond separately to the ground of unpatentability asserted against dependent claim 16.

1. Section 103(a) — SM Guide, Edwards, Patterson, and Fair

Petitioner adds the teachings of Fair to the basic combination of SM Guide, Edwards, and Patterson in a proposed ground of obviousness as to dependent claim 16. Pet. 56–59. Petitioner relies on the additional teachings of Fair, a patent directed to NetApp, to demonstrate the obviousness of this claim. *Id.* at 52–57 (supported by the testimony of Dr. Zadok in Ex. 1116). We find that Petitioner has established by a preponderance of the evidence that the subject matter of claim 16 would have been obvious over SM Guide, Edwards, Patterson, and Fair.

III. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1, 8, 11, 14, 15, 18, and 20 are unpatentable for obviousness under 35 U.S.C. § 103(a) over SM Guide, Edwards, and Patterson and that claim 16 is unpatentable for obviousness over SM Guide, Edwards, Patterson, and Fair.

IV. ORDER

In consideration of the foregoing, it is
ORDERED that claims 1, 8, 11, 14–16, 18, and 20 of the '944 patent have been shown to be unpatentable;

FURTHER ORDERED that Petitioner's motion to expunge Exhibit 1126 is *granted*;

FURTHER ORDERED that Patent Owner's motion to exclude evidence is *dismissed-in-part* and *denied-in-part*; and

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

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