

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VEEAM SOFTWARE CORPORATION,  
Petitioner,

v.

SYMANTEC CORPORATION,  
Patent Owner.

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Case IPR2014-00089  
Patent 7,831,861

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Before WILLIAM V. SAINDON, THOMAS L. GIANNETTI, and  
TRENTON A. WARD, *Administrative Patent Judges*.

SAINDON, *Administrative Patent Judge*.

DECISION

Final Written Decision  
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73  
Dismissing Motion to Exclude  
37 C.F.R. § 42.64

## I. INTRODUCTION

We have jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

With respect to the grounds asserted in this trial, we have considered the papers submitted by the parties and the evidence cited therein. For the reasons discussed below, we determine that all of the challenged claims of U.S. Patent No. 7,831,861 B1 (Ex. 1001, “the ’861 patent”) are unpatentable.

We dismiss Patent Owner’s Motion to Exclude the McInnis reference, because we do not reach the ground which relies upon McInnis.

### A. *Procedural History*

Veeam Software Corporation (“Petitioner”) filed a corrected Petition requesting an *inter partes* review of claims 1–3, 6, 7, 11–15, 18, and 19 of the ’861 patent. Paper 4 (“Pet.”). Petitioner included a Declaration of Dr. Prashant Shenoy. Ex. 1002. Symantec Corporation (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”).

In our Decision Instituting *Inter Partes* Review, we granted review as to all of the challenged claims. Paper 9 (“Dec. to Inst.”). Patent Owner filed a Response to the Petition (Paper 18, “PO Resp.”), which included a Declaration of Dr. Jon B. Weissman (Ex. 2003). Petitioner filed a Reply to the Response (Paper 21, “Pet. Reply”), which included a Reply Declaration of Dr. Shenoy (Ex. 1014).

On December 18, 2014, all parties were present for an oral hearing. Paper 31 (“Tr.”).

Patent Owner filed a Motion to Exclude McInnis. Paper 24 (“Mot. Excl.”). Petitioner filed an Opposition (Paper 28, “Opp. Mot. Excl.”) and Patent Owner filed a Reply (Paper 30, “Reply Mot. Excl.”).

*B. Related Matters*

The ’861 patent is involved in a district court case styled *Symantec Corp. v. Veeam Software Corp.*, No. 3:14-cv-00700-SI (consolidated with 3:12-cv-01035 and -05443) (N.D. Cal.). Pet. 1; Paper 7, 1 (Patent Owner Mandatory Notices).

In addition to this Petition, Petitioner previously filed petitions challenging the patentability of certain claims of Patent Owner’s U.S. Patent Nos. 6,931,558 B1 (IPR2013-00141, IPR2013-00142), 7,254,682 B1 (IPR2013-00144, IPR2013-00145), 7,191,299 B1 (IPR2013-00143, IPR2013-00151). In three of those proceedings, we denied institution on August 7, 2013. *See* IPR2013-00144, Paper 11; IPR2013-00145, Paper 12; IPR2013-00151, Paper 7. We entered final decisions in the remaining proceedings on July 29, 2014. *See* IPR2013-00141, Paper 50; IPR2013-00142, Paper 51; IPR2013-00143, Paper 48. Additionally, on October 22, 2013, Petitioner filed petitions challenging the patentability of certain claims of Patent Owner’s U.S. Patent Nos. 7,480,822 (IPR2014-00088), 7,024,527 (IPR2014-00090), and 8,117,168 (IPR2014-00091). On March 20, 2015, we entered a final decision in IPR2015-00088 (Paper 45) and shall enter final decisions in the other cases concurrently with this decision.

*C. The ’861 Patent*

The ’861 patent is titled “Techniques for Efficient Restoration of Granular Application Data” and generally relates to a process of backing up

and then restoring data. After an initial backup, the backup data is virtualized into a staging area. Ex. 1001, 5:9 (backup), 5:16–18 (export of backup data), 5:39–40 (virtualization of backup data). Then, a recovery process begins that writes updates and transactions to recovery files. *Id.* at 5:55–6:3. The backup data and recovery files are then virtualized,<sup>1</sup> and an application can use that virtualization to recover data. *Id.* at 6:49–56.

#### *D. Illustrative Claims*

Of the claims challenged, claims 1, 12, and 13 are independent.

Claim 1 is illustrative and reproduced below:

1. A method for restoring one or more portions of application data comprising:  
performing a full backup;  
exporting one or more backup files;  
creating a specified staging area;  
virtualizing the one or more backup files of the application data into the specified staging area;  
running a recovery process for the one or more backup files wherein the recovery process includes:  
enabling recovery by writing recovery changes to one or more recovery files, wherein writing recovery changes to one or more recovery files allows the one or more backup files to remain unmodified; and  
saving the one or more backup files and the one or more recovery files;  
virtualizing the one or more backup files and the one or more recovery files

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<sup>1</sup> Virtualization involves creation of a virtual (as opposed to actual) version of data; typically to use that data but allow it to remain unmodified.

instantiating an instance of an application utilizing the virtualized one or more backup files and the virtualized one or more recovery files; and recovering one or more portions of the application data.

*E. Asserted Grounds and Prior Art*

We instituted an *inter partes* review on the following grounds:

| Reference(s)                                        | Basis    | Claims Challenged            |
|-----------------------------------------------------|----------|------------------------------|
| McInnis <sup>2</sup> and Lal <sup>3</sup>           | § 103(a) | 1–3, 6, 7, 11–15, 18, and 19 |
| Liu <sup>4</sup>                                    | § 102(b) | 1–3, 6, 7, 11–15, 18, and 19 |
| Becker <sup>5</sup> and Valiyaparambil <sup>6</sup> | § 103(a) | 1–3, 6, 7, 11–15, 18, and 19 |

II. ANALYSIS

*A. Claim Construction*

We interpret the claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent. 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271, 1281–82 (Fed. Cir. 2015). Under the broadest reasonable interpretation standard, claim terms are given their ordinary and customary meaning, as would be

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<sup>2</sup> Dale McInnis et al., *DB2 9 HADR: Build a Standby Database Using SnapMirror® and Create a Read/Write Copy of the Standby Using FlexClone™* (Jan. 22, 2007) (Ex. 1004) (“McInnis”).

<sup>3</sup> Jawahar Lal et al., *DB2: Cloning a Database using NetApp FlexClone™ Technology* (Apr. 30, 2006) (Ex. 1005) (“Lal”).

<sup>4</sup> WO 2007/002397 A2, pub. Jan. 4, 2007 (Ex. 1006) (“Liu”).

<sup>5</sup> US Pub 2004/0139128 A1, pub. July 15, 2004 (Ex. 1007) (“Becker”).

<sup>6</sup> US Pub 2007/0276885 A1, pub. Nov. 29, 2007 (Ex. 1008) (“Valiyaparambil”).

understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

In our Decision to Institute, we construed several terms or phrases: “performing a full backup,” “export,” “backup files,” “recovery files,” and “recovery changes.” Dec. to Inst. 5–7. The parties contest whether we should modify our construction of “export.” PO Resp. 13–18; Pet. Reply 2–4. Patent Owner also proposes modifications to our constructions of “recovery file” and “backup file” (PO Resp. 18–21) and proposes a construction of “staging area” (*id.* at 55). We turn to these four contested terms.

1. “export”

In our Decision to Institute, we construed this term, found in each independent claim, to mean, “moving, copying, or otherwise causing data from a source location to appear as local on a destination location.” Dec. to Inst. 6. Petitioner proposed the construction and Patent Owner did not oppose it, although Patent Owner argued that the term “export[ing] one or more backup files” should be construed as additionally requiring the exported backup files to be *of application data selected from the full backup*. *Id.* We declined to import those additional limitations into the claim, and adopted Petitioner’s otherwise unchallenged construction. *Id.*

Patent Owner now proposes that “export” should be construed as “mak[ing] remote data accessible to clients as though it were local.” PO

Resp. 14. In effect, Patent Owner seeks to remove the “moving” and “copying” aspects of the proposed construction (i.e., to preclude an “export” from being a “copy” or a “move”), and to preclude actual locality in favor of an appearance of locality (consistent with having not copied or moved the data). In proposing to remove the “moving” and “copying” aspects, Patent Owner argues that the ’861 patent uses the term “copy” in operations other than “exporting,” such that Petitioner’s construction “conflate[s] ‘exporting’ with ‘copying’ or ‘moving.’” *Id.* at 14–15. In proposing to limit “exporting” to only an appearance of locality and to preclude actual locality, Patent Owner argues that this construction gives appropriate weight to the later-occurring “saving” limitation. *Id.* at 15–18. Patent Owner argues that it is the recovery process, and specifically the “saving” step, that actually moves or copies the data. *Id.* at 16–17.

Petitioner argues that the extrinsic evidence supports its construction and that there is no clear disavowal in the ’861 patent to justify Patent Owner’s narrower construction. Pet. Reply 2, 3. Petitioner argues that Patent Owner’s construction “conflicts with dependent claim 7, which treats ‘exporting’ and ‘exposing . . . as a shared resource’ differently.” Pet. Reply 2–3. In response to Patent Owner’s arguments, Petitioner points out that its construction of “export” recognizes explicitly that “copying” is a different operation and that its construction merely acknowledges that exporting may take the form of copying. *Id.* at 3–4. Further, Petitioner points out that “data *that is local* also ‘appear[s] as local,’” and argues that the ’861 patent provides examples where the act of exporting copies or moves backup files. *Id.* (citing Ex. 1001, 5:39–47; Ex. 1014 ¶¶ 4, 6). Petitioner argues that its construction does not render meaningless the “saving” step and that Patent

Owner contended in the underlying District Court case that “‘copying of data’ meets the ‘exporting’ step.” *Id.* at 4 (citing Symantec’s Infringement Contentions, Ex. 1012, 57–59).

Reviewing the arguments and evidence before us, we determine that Patent Owner’s newly-proposed construction is unreasonably narrow and that Petitioner’s proposed construction is more consistent with the ’861 patent and the extrinsic evidence, for the reasons that follow. Initially, we note that neither party proposes that the term “export” is defined in the ’861 patent, nor do we see any such definition. We now turn to several passages in the ’861 patent that shed light on the meaning of “export.”

The ’861 patent describes backup component 115 as a device that “redirect[s],” “split[s],” or “replicate[s]” data in order to enable “exporting of backup data.” Ex. 1001, 3:38–43. Thus, the ’861 patent explains that a device that *transfers* data enables “exporting,” implying that exporting may be a transfer of data.

The ’861 patent further describes how backup data 145 “contain[s] exported data” and “appear[s] as local disks to backup server 150.” *Id.* at 4:9–15. We understand this passage to mean that the backup data is stored at the backup server’s location, not the application server. This passage further supports the passage discussed in the previous paragraph, which led us to conclude that “exporting” may be a transfer of data performed by the backup component. In addition, we understand this passage to explain the specification’s use of the phrase “appear as local,” which describes a condition of actual locality because the backup data is connected to the backup server. *Id.* at Figs. 1, 2.

The '861 patent also describes how application data “may be exported to storage associated with a separate device for recovery, such as storage 165.” *Id.* at 4:15–18. This passage also indicates that “exporting” may involve a transfer of data, because application data is originally at application server 110 and must be transferred over network 135 in order to be stored at storage 165 in recovery server 160. *See id.* at Figs. 1, 2.

In the method depicted in Figure 3 of the '861 patent, the backup step 315 is performed by a CDP (Continuous Data Protection) service, which is a reference to the redirector/splitter/replicator in column 3 that we discussed above. *Id.* at 5:12–15; *see also id.* at 4:55–65 (describing CDP), 3:36–45 (describing the backup component as providing services that a CDP would perform). The Figure 3 method then, in step 320, describes how “the backup data may be exported to a backup server enabling the data to appear as local.” *Id.* at 5:16–18. We conclude that this disclosure, like the passages in column 4 we discussed above, explains that “appear as local” means actual locality and the data actually is at the backup server. Thus, we determine that this passage of the specification uses the term “export” in reference to the actual transfer of data from the application server to the backup server, using the CDP in the backup step 315.

In view of the above, we determine that the '861 patent supports Petitioner’s construction over Patent Owner’s more narrow construction. Specifically, we determine that the '861 patent describes “exporting” in a manner consistent with an export being a transfer of data (e.g., copying or moving).

In addition to this intrinsic evidence, Petitioner provides extrinsic evidence in support of their construction. Particularly, Petitioner cites to a

technical dictionary that defines “export” as: “*vb.* To move information from one system or program to another”; and “*n.* In NFS, a file or folder made available to other network computers . . . .” Ex. 1009, 202. Petitioner offers the first definition as evidence that its construction is consistent with the broadest reasonable interpretation as would be understood by a person of ordinary skill in the art. We agree—the ’861 patent uses “export” as a verb and in describing movement of information from one system to another.

We have also considered the testimony of Drs. Shenoy and Weissman. Dr. Shenoy’s testimony provides support for “export” being a transfer of data. *See* Ex. 1002 ¶ 19; Ex. 1014 ¶¶ 3–6. Dr. Weissman’s testimony discusses at length how Patent Owner’s construction “has support in the specification.” Ex. 2003 ¶¶ 61–76. Nevertheless, Dr. Weissman’s testimony does not persuade us that Petitioner’s construction is not the broadest reasonable interpretation of “export.” For instance, we are not persuaded that Petitioner’s construction conflicts with the “saving” limitation. From our above investigation of the ’861 patent’s treatment of the term “export,” we determined that the exporting step encompassed a transfer or movement of data to another location. Thus, under Petitioner’s construction of “export,” saving can still occur, and the term is not rendered superfluous.

We adopt a modified version of Petitioner’s proposed construction, to alleviate any potential confusion. In conclusion, we construe “export” as “causing data from a source location to appear as local on a destination location.”

## 2. “*backup file*”

In our Decision to Institute, we construed this term, found in each independent claim, to mean, “the data resulting from a backup.” Dec. to Inst. 7. In that Decision, we noted that the ’861 patent did not discuss exporting backup *files*, but rather backup *data*. *Id.* We also noted that the ’861 patent described backup data as *containing* the individual items that were backed up (e.g., application files). *Id.* As a consequence, we determined that the ’861 patent described backup data as a container or store for backed up application files, but not as a stand-alone backed-up version of a particular application file.

Patent Owner seeks to construe “backup file” to be “a file of application data stored as part of a backup process.” PO Resp. 19–20. Patent Owner argues that “files” are a well-understood concept and that they simply are claiming less than the full scope of the disclosure. PO Resp. 19. Although Patent Owner does not point to any particular passages in the ’861 patent to support its proposed construction, it argues that its construction is consistent with the “plain and ordinary meaning” of the term. PO Resp. 18–19; Ex. 2003 ¶ 58.

Patent Owner’s proposed construction is not consistent with the broadest reasonable interpretation of “backup file” in light of the specification because (1) the ’861 patent describes a backup, recovery, and restoration system that requires a data store, and (2) the construction Patent Owner advocates would require a different type of system. Our reasoning follows.

First, the ’861 patent describes the backup, recovery, and restoration process as utilizing a *container* or *store* of backed up information (which

may, in turn, contain files); it does not describe the creation of individually backed up files. *See, e.g.*, Ex. 1001, 3:29–33, 3:53–61, 4:5–20, 5:10–12, 6:19–21, 6:28–30, 6:45–51. Multiple steps described in the ’861 patent operate on a data store or require a data store from which to pick out the individual files stored therein. *See* Ex. 1001, 6:19–21, 6:31–43, 6:45–54, Fig. 4 (items 415, 430, 435, 440, 450). Patent Owner cites to the testimony of Dr. Weissman for support of its position, but Dr. Weissman only points to a disclosure in the ’861 patent that states that backup data *contains* a file. Ex. 2003 ¶ 60. This passage, stating that backup data contains a file, does not persuade us that backup data is a file. Finally, we note that the term “backup file” is found in the ’861 patent, but the term appears to be a typographical error because the paragraph using the term starts out with “backup data” and then switches to “backup file” as if it were still using the term “backup data.” *Id.* at 5:39–47. Even if the use of this term were not a typographical error, this one instance of the term “backup file” in the specification does not support Patent Owner’s construction because it does not speak to whether a “backup file” is a data store or a single application file. Thus, this use of “backup file” in the ’861 patent specification does not support Patent Owner’s construction. We determine that the ’861 patent describes a system that relies on a data store to host the backed up information (which may include files).

Second, there is a technical distinction between a backup, recovery, and restoration system utilizing a data store to host files (as described in the ’861 patent) and a system that backs up individual files (as in Patent Owner’s construction). This is a distinction between different types of systems, rather than a matter of scope, for two main reasons. As we just

discussed, systems that use data stores require steps for pulling the data out of those stores, such as described in the '861 patent. See Ex. 1001, 6:19–21, 6:31–43, 6:45–54, Fig. 4 (items 415, 430, 435, 440, 450). Also, Patent Owner's declarant, Dr. Weissman, explains that a difference between systems that use data stores and those that use individually backed up files is that the latter requires file-level access. Ex. 2003 ¶¶ 162–163, 181–182, 192–195. Accordingly, we determine that backup, recovery, and restoration systems that utilize a data store are different from those that back up individual files.

Based on our review of the record before us, we determine that the '861 patent does not describe a restoration system that operates on the individual file level such as to support Patent Owner's proposed construction. The '861 patent does not describe the file-level access necessary for the “backup file” of the claim to mean “a file of application data stored as part of a backup process.” Indeed, the '861 patent describes gathering data using a “splitter” that replicates “transactions directed to storage” rather than individual files. Ex. 1001, 3:38–42. Lastly, contrary to Patent Owner's proposed construction, the '861 patent describes the claimed steps as being performed on a data store, not on individual application files.

In view of the above, we construe “backup file” to mean “the data resulting from a backup.”

### 3. “*recovery files*”

In our Decision to Institute, we construed this term, found in each independent claim, to mean “files that store information about changes to data.” Dec. to Inst. 7. Petitioner does not object to this construction; Patent

Owner proposes a more narrow construction. *See* Pet. Reply 12–13; PO Resp. 20–21. Specifically, Patent Owner proposes that “recovery files” are “a file of recovery changes stored as part of a recovery process.” PO Resp. 20.

We decline to adopt Patent Owner’s proposed construction because it merely presents an alternative construction without persuasive explanation as to why the prior construction is not the broadest reasonable interpretation or why its proposed construction is the broadest reasonable interpretation. Indeed, Patent Owner’s construction is unclear because it raises an issue of when and whether something is “stored as part of a recovery process.” The claims define the recovery process as the steps of enabling recovery and saving.<sup>7</sup> Patent Owner’s construction, on the other hand, would re-write the claim to: “running a recovery process . . . wherein the recovery process includes enabling recovery by writing recovery changes to one or more [files of recovery changes stored as part of a recovery process].” Patent Owner does not persuade us that this provides the broadest reasonable interpretation. Thus, we decline to adopt Patent Owner’s construction and we see no need to modify the prior construction.

In view of the above, we construe “recovery files” to be “files that store information about changes to data.”

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<sup>7</sup> Claim 1 in part reads: “running a recovery process for the one or more backup files wherein the recovery process includes: enabling recovery by writing recovery changes . . . ; and saving . . . .”

#### 4. “staging area”

We did not construe this term in our Decision to Institute. Patent Owner contends that a “staging area” is “an allocated portion of storage.” PO Resp. 55. Patent Owner argues that, because a staging area is storage, it cannot be a physical system (e.g., a server). *Id.* Petitioner replies that Patent Owner’s proposed construction is unduly narrow, pointing to several passages in the ’861 patent for support. Pet. Reply 5–6. Patent Owner and Petitioner each cite to the same portions of the ’861 patent. *Compare id.*, with PO Resp. 55 (both citing Ex. 1001, 5:26–54 (“staging area 170, may be created on a backup server or another server”); *id.* at 3:21–23 (“[s]torage 165 may contain staging area 170”); *id.* at 4:21–24 (“[s]torage 140 may host a staging area”)).

We agree with Patent Owner that the claimed “staging area” must be a place where data is stored. None of the passages cited by Patent Owner, however, nor any other evidence of record, persuade us that the staging area cannot be part of a larger system having storage (e.g., a server). Patent Owner’s declarant, Dr. Weissman, states that the ’861 patent “clearly identifies that the staging area is an allocated section on a storage device and not a database server.” Ex. 2003 ¶ 173. Dr. Weissman provides no explanation for how the ’861 patent “clearly identifies” that a staging area is “not a database server.” In contrast, we find that the ’861 patent states that the staging area may be a part of a server. Ex. 1001, 5:26–28 (the staging area “may be created *on a backup server or another server*”) (emphasis added). In addition, Patent Owner provides no persuasive evidence or explanation as to why a “staging area” must be on an *allocated* portion of storage, and Patent Owner provides no explanation of what “allocated”

means.<sup>8</sup> The '861 patent does not describe how the staging area is created. Ex. 2002, 59:15–16. Patent Owner cites to the testimony of Petitioner's declarant, Dr. Shenoy, during a deposition for support of its position (PO Resp. 55), but Dr. Shenoy's testimony does not support Patent Owner's position (Ex. 2002, 59:9–61:14 (Dr. Shenoy testifying that the '861 patent does not specify any particular means for creating the staging area, that it need not be pre-allocated, and that it may reside on a server)). Accordingly, we are not persuaded by Patent Owner's argument that a "staging area" must be allocated.

In view of the record before us, we construe "staging area" as "storage," which can be alone or as a part of another device such as a server. *Id.* at 59:12.

### *B. Anticipation in View of Liu*

Petitioner asserts that claims 1–3, 6, 7, 11–15, 18, and 19 are anticipated by Liu. Pet. 26–42. We discuss the relevant disclosure of Liu, Petitioner's ground, and then Patent Owner's arguments.

#### *1. Liu*

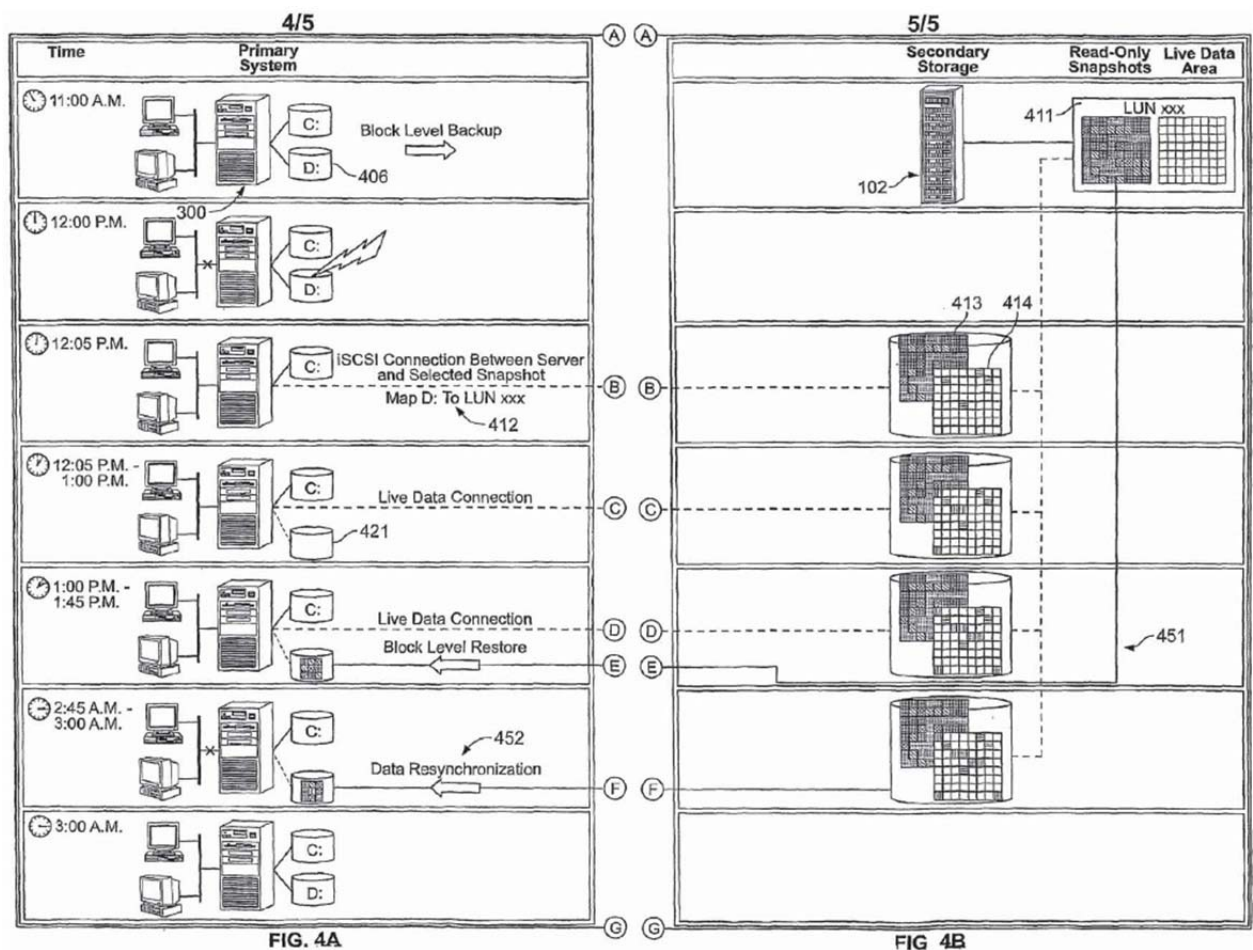
Liu describes backing up and restoring data. Snapshots containing a full point-in-time backup are created on a backup server. Ex. 1006, 9, Fig. 3. In the event of a failure, Liu describes a virtualization of the backup

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<sup>8</sup> If data are written to storage, they are "allocated" in some sense. Thus, it appears that either Patent Owner intends a different, unexplained meaning of the term "allocated," or the word is superfluous and not useful to the construction of "staging area." In either event, we are not persuaded that the word "allocated" is useful in the construction of "storage."

that is used while the primary system is being fixed. *Id.* at 36–37. As explained further below, the backup file is not modified, and transactions are stored in a separate location. *Id.* A virtualization of the backup and the transactions serves to provide a fully functional backup of the failed primary system. *Id.*; *id.* at Fig 4.

Figures 4A and 4B depict an exemplary use of the system in Liu, and are reproduced below:



Figures 4A and 4B above of Liu depict a scenario in which instant availability and recovery features are shown. At 11:00 a.m., data on storage volume D: (406) is backed up and then transferred to and saved on secondary storage 102. *Id.* at 36; *see also id.* at 21–22 (discussing in further

detail the process of backing up and exporting data), Fig. 3. At 12:00 p.m., volume D: goes down, prompting, at 12:05 p.m., the secondary storage system to provide a virtualization of backup data 413 and “live data area” 414. *Id.* at 36–37. “Live data area” 414 stores data writes, i.e., deltas, such that backup file 413 is not modified. *Id.* This allows for normal use of the data that was on volume D: during the recovery process. *Id.*

## 2. *Petitioner’s Ground*

Petitioner asserts that in Liu, a base backup is performed for all allocated blocks and exported to secondary storage (having a staging area). Pet. 31–33. Then, upon primary system failure, the backup is virtualized, using a LUN (logical unit number) to provide a “just-in-time” restoration. *Id.* at 33–34. At that point, a recovery process begins, using the backup. *Id.* at 34–35, 38. During recovery, the backup file itself is unmodified, and any changes resulting from the live use of the virtualized backup are written to a live data area. *Id.* at 35–36. The backup file and changes (recovery files) are saved. *Id.* at 36. The combination of these two is in turn virtualized in a LUN, thus allowing an instance of an application to access the data during the recovery process. *Id.* at 36–38.

## 3. *Analysis*

Patent Owner has five principal arguments regarding Liu. PO Resp. 39–45. Each argument is directed, as a whole, to “[e]ach of the independent claims.” *See, e.g., id.* at 39. Each of the independent claims, i.e., claims 1, 12, and 13, are substantially similar for purposes of resolving the issues before us. Our analysis is directed to claim 1, but is applicable to each of the independent claims.

We now address Patent Owner's arguments in turn.

*a. Exporting*

Claim 1 recites a step of "exporting one or more backup files." Petitioner's position is that Liu anticipates this feature when it describes a source node transferring its data to a destination over a network. Pet. 32 (citing Ex. 1006, 13:25–27; Ex. 1002 ¶ 68); Pet. Reply 14–15 (citing Ex. 1014 ¶¶ 36–37); *see also* Ex. 1006, Figs. 4A, 4B (at 11:00 am, the block-level backup then transfers the data over the network to secondary storage 102).

Patent Owner argues that Liu does not disclose "exporting one or more backup files." PO Resp. 39–40. Specifically, Patent Owner argues that Liu copies data to provide actual locality and that Liu transfers raw data blocks, not files. *Id.* Patent Owner's arguments are unpersuasive in view of our constructions of "exporting" and "backup files." As we noted in our constructions of those terms, a person of ordinary skill in the art would, upon review of the specification, understand that "exporting" does not preclude a transfer of data or actual locality, and that "backup files" need not be individual application files. In addition, the evidence of record convinces us that the backup file in Liu includes files. Ex. 1006, 22:6–8 (the backup on the secondary storage "represents all the data (volume/directories/files) on the primary"). Accordingly, we are not convinced by Patent Owner's arguments that Liu does not describe exporting.

*b. Recovery Process*

Claim 1 recites a step of "running a recovery process," which is defined by the claim as the steps of "enabling recovery by writing recovery changes to one or more recovery files" and "saving the one or more backup

files and the one or more recovery files.” Petitioner’s position is that Liu runs a recovery process by saving the backup file in its unmodified state (in LUN 411) and writing and saving recovery changes (i.e., modifications to the backup file) to a “live data area” of LUN 411, called LUN file 414. Pet. 34–36 (citing Ex. 1006, 6:21–22, 29:28–30, 36:33–35, 37:2–4; Ex. 1002 ¶¶ 57, 74); *see also* Ex. 1006, Fig. 4B (at 11:00 am the unmodified backup file is saved in LUN 411, at 12:05 pm backup file 413 in LUN 411 remains unmodified while the changes are saved into LUN 414).

Patent Owner argues that Liu does not disclose “running a recovery process for the one or more backup files.” PO Resp. 40–43. Specifically, Patent Owner argues that the claim requires two distinct phases and also “running a recovery process to generate recovery files *before* saving *any* backup data.” *Id.* at 40–42 (emphases added). This argument is unpersuasive because it relies on limitations not found in the claim. As we explain below, the claim does not specify an order to the claimed steps, does not require two distinct phases, and does not require all recovery files to be generated before saving any backup data.

The steps in a method claim are required to be performed in a particular order only when the grammar and logic of the claims or the specification requires as much. *Altiris Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371 (Fed. Cir. 2003). Neither a backup file nor a recovery file can be saved before it is created, but neither the claim nor logic would preclude, for example, the saving of a backup file before a recovery file is created, because they are separate files. *See* Ex. 1001, 5:57–60 (noting that writing to recovery files allows the backup file to be unmodified). Thus, we are not persuaded that the claims require the saving of the backup files before the

writing of the recovery files. Patent Owner relies on its declarant, Dr. Weissman, for support for its position that the claim requires “generat[ing] [(presumably: writing)] recovery files before saving any backup data” (PO Resp. 40–41 (citing Ex. 2003 ¶¶ 183–189)), but we have reviewed his testimony and find it unpersuasive because he discusses the ’861 patent disclosure and exemplary embodiments without explaining how the claim is limited to any particular order or embodiment. Likewise, we are not persuaded that anything in the claims or the specification would exclude saving some recovery files before other recovery files are written. Accordingly, we are not persuaded that the claims and specification impose a particular order of “writing recovery changes to . . . recovery files” and “saving the . . . backup file and the . . . recovery files” (aside from the fact that they must exist to be saved).

Likewise, Patent Owner’s argument that the claims require two distinct phases is unpersuasive. For example, Patent Owner argues that the flowchart in Figure 3 of the ’861 patent must occur before the flowchart in Figure 4. PO Resp. 40–41. Even if that were true, however, that situation would not provide any reason to limit the particular ordering of the steps of the claims because the limitations Patent Owner argues (enabling recovery; saving) are only shown in Figure 3.

Patent Owner lastly argues that “Liu . . . defers any potential recovery steps to the restoration phase.” PO Resp. 43. As we explained above in this section, however, we are not persuaded that the claims require two distinct phases or any particular ordering of the steps. Patent Owner similarly argues that the ’861 patent “does not disclose that the first created staging area may be used in the second virtualization step.” *Id.* Patent Owner does not

explain how the claims prohibit the staging area from being used in the second virtualization step, however, and as such, this argument is unpersuasive. In view of the above, we determine that Patent Owner's arguments that Liu does not describe a recovery process as claimed are unpersuasive.

*c. Virtualization Steps*

Claim 1 requires two virtualization steps. The first is of the backup files into the staging area and the second is of the backup files and the recovery files. Petitioner's position is that the first virtualization is of unmodified portion 413 of LUN 411 in the staging area (Liu's secondary storage server) and the second virtualization is of unmodified portion 413 of LUN 411 and live data area 414 of LUN 411. Pet. 33–34, 36–37 (citing Ex. 1006, 21:8–12, 18:20–21, 36:33–35, 37:1–7); *see also* Ex. 1006, Figs. 4A, 4B (depicting the first virtualization at 11:00 am and the second as any of 12:05 pm or later).

Patent Owner argues that Petitioner relies on the same disclosure in Liu to show both claimed virtualization steps. PO Resp. 42. The first claimed virtualization step is of the backup files into the staging area. The second claimed virtualization step is of the backup file and the recovery files. Petitioner asserts that the first virtualization is of unmodified backup data into LUN 411. Pet. 33–34. Because this instance is yet unmodified, it is a virtualization of the backup file and does not include any recovery files. Petitioner then asserts that live data area 414, which also is virtualized along with the backup file, is the “recovery file.” *Id.* at 35, 36–37. Accordingly, we are persuaded that there are two distinct virtualizations happening in Liu: one of the backup file alone, and one of the backup file and the recovery file,

which occurs later, after the recovery file has been populated. Accordingly, Patent Owner’s argument that Liu does not describe the virtualization steps as claimed is unpersuasive.

*d. Unmodified Backup File*

Claim 1 recites that the recovery files “allow[] the one or more backup files to remain unmodified.” Petitioner’s position is that the backup file in Liu is “read-only and does not change” and that the changes (i.e., recovery changes) are written separately to “live data area” 414. Pet. 35–36 (citing Ex. 1006, 6:21–22, 37:2–4); *see also* Ex. 1006, Figs. 4A, 4B (item 413 is the unmodified backup, item 414 is the live data area).

Patent Owner argues that Liu does not disclose “running a recovery . . . wherein writing recovery changes to one or more recovery files allows the one or more backup files to remain unmodified.” PO Resp. 43–45. Patent Owner’s arguments rely on order-of-steps limitations not found in the claim. *See id.* As we discussed with respect to the “recovery process” limitation above, these arguments are unpersuasive. Therefore, Patent Owner’s argument that Liu does not describe the claimed unmodified backup file, therefore, is unpersuasive.

*e. Recovery File*

Claim 1 recites that the recovery process “enabl[es] recovery by writing recovery changes to one or more recovery files.” Petitioner’s position is that live data area 414 of LUN 411 holds the recovery changes, and is, itself, stored in a file. Pet 35–36 (citing Ex. 1006, 6:21–22, 37:2–4); Pet. Reply 15 (citing Ex. 1006, 18:20–24; Ex. 1014 ¶ 37).

Patent Owner argues that Liu does not disclose “recovery files” because, according to Patent Owner, Liu’s live data area 414 is not a file.

PO Resp. 45. As Petitioner points out, however, Liu describes live data area 414 as a “LUN *file*.” Pet. Reply 15 (emphasis added). Thus, Patent Owner’s argument is unpersuasive.

#### *4. Conclusion Regarding Liu*

Reviewing the record before us, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 1 of the ’861 patent is anticipated by Liu. Patent Owner does not argue separately the other challenged claims. We have reviewed Petitioner’s assertions regarding claims 2, 3, 6, 7, 11–15, 18, and 19, and the evidence cited therein, and determine that Petitioner has shown, by a preponderance of the evidence, that Liu also anticipates those claims. *See* Pet. 39–42.

#### *C. Unpatentability in View of Becker and Valiyaparambil*

Petitioner asserts that claims 1–3, 6, 7, 11–15, 18, and 19 are unpatentable in view of Becker and Valiyaparambil. Pet. 42–60.

##### *1. Becker*

Becker describes a backup and recovery system. Ex. 1007, Abstr. Figure 3 of Becker, is reproduced below:



Figure 3 of Becker depicts a backup and recovery system. In general, replicated image 356 serves as a backup to production image 326. *Id.* ¶ 75. Any change to the production image 326 generates a log file, which is used to update replicated image 356. *Id.* Thus, production image 326 is replicated on replicated image 356. Snapped image 374 or cloned image 372 may be created. *Id.* ¶ 76. Snapped image 374 provides a read-only point-in-time virtualization of replicated image 356. *Id.* Cloned image 372 provides a read/writeable point-in-time virtualization of replicated image 356. *Id.* Because replicated image 356 is updated as production image 326 is updated, creation of snapshot 374 or clone 372 requires use of journal 370. *Id.* If data on replicated image 356 used by a clone or snapshot changes then

journal 370 captures these changes to preserve the backup data at the point-in-time state for the clone or snapshot. *Id.* ¶¶ 76–77. In addition, writes to the clone 372 are stored in journal 370. *Id.*

Replicated image 356 is updated using logs. *Id.* ¶ 75. The logs are stored in the backup manager in AILFCs 362 (after image log file container) and BILFC 360 (before image log file container), which can be used to, essentially, fast-forward or rewind replicated image 356 to any desired point in time, by using cloned image 372 and applying the logs. *Id.* ¶ 114.

## *2. Valiyaparambil*

Valiyaparambil describes a system for backing up one or more volumes. Ex. 1008, Abstr. In relevant part to the discussion below, a baseline copy of one or more volumes is transferred from a production server to a backup server. *Id.* ¶¶ 23, 26. The baseline copy comprises “all the data . . . for the volume, folder, file, or set of files of interest.” *Id.* ¶ 26. Valiyaparambil teaches that a consistent (unmodifiable) initial backup is made and then updates are stored as changes are made. *Id.* ¶ 21.

## *3. Petitioner’s Ground*

Petitioner asserts that Becker describes performing a full backup of replicated image 356, which is exported to archive storage device 380. Pet. 48–49. Petitioner asserts that Becker also describes backup files in replicated image 356, which are located in a backup storage system (i.e., staging area). *Id.* at 49–50. Petitioner asserts that, to the extent that replicated image 356 of Becker fails to meet this limitation, Valiyaparambil teaches creating an initial, baseline copy of all data for the “volume, folder, file, or set of files of interest.” *Id.* at 49 (citing Ex. 1008 ¶ 26).

Petitioner asserts that replicated image 356 is virtualized using snapshot 374 or clone 372. Pet. 50–51. Using clone 372, backward or forward increments (recovery changes) can be written to the clone to recreate production image 326 at a particular time. *Id.* at 52. In addition, clone 372 can be used in a read/write mode, in which changes are written to journal 370 instead of replicated image 356. *Id.* Petitioner adds that, to the extent this could be considered a modification of the backup file, Valiyaparambil describes unmodifiable backup files. *Id.* at 52–53. Petitioner asserts that both replicated image 356 (backup file) and journal 370 (recovery files) are saved. Pet. 53–54.

Next, Petitioner asserts that cloned image 372 is virtualized, the clone including replicated image 356 and journal 370. Pet. 54–55. When virtualized, the clone is usable by application 302 to read data from the clone. Pet. 55–56.

#### 4. Analysis

Patent Owner has five principal arguments regarding Becker and Valiyaparambil. PO Resp. 53–60. Each argument is directed, as a whole, to “[e]ach of the independent claims.” *See, e.g., id.* at 53. Each of the independent claims, i.e., claims 1, 12, and 13, are substantially similar for purposes of resolving the issues before us. Our analysis is directed to claim 1, but is applicable to each of the independent claims.

We now address Patent Owner’s arguments in turn.

##### a. Exporting

Claim 1 requires a step of “exporting one or more backup files.” Petitioner’s position is that Becker transfers data from the production image,

including files, such that the replicated image is a backup of the production image. Pet. 48–49 (citing Ex. 1007 ¶¶ 33, 75, 162); Pet. Reply 4–5 (citing Ex. 1007 ¶¶ 81, 158; Ex. 1014 ¶¶ 10–12). Petitioner’s position is also that replicated image 356 itself is fully backed up to archive 380. Pet. 48.

Patent Owner argues that Becker and Valiyaparambil do not describe an “export.” PO Resp. 53–54. Specifically, Patent Owner argues that Becker relies on copying and what it copies are not files using file-level protocols. *Id.* As with the similar argument made with respect to Liu, this argument is unpersuasive because it relies on constructions of “export” and “backup files” not commensurate with the broadest reasonable interpretation. In addition, the record establishes that Becker exports individual application files stored in the backup file because those files are stored in, and accessible from, the cloned image. Ex. 1014 ¶ 12 (citing Ex. 1007 ¶ 158); Ex. 1007 ¶ 158 (the “application on the primary . . . pulls the applicable [requested] files out of the cloned image 372”).

In view of the above, we determine that Becker describes exporting as claimed.

*b. Staging Area*

Claim 1 requires “creating a specified staging area.” Petitioner’s position is that the backup storage system of Becker is the staging area because it is where the backup data is stored. Pet. 50 (citing Ex. 1007 ¶¶ 32, 75–76, 161–162); Pet. Reply 6–7 (citing Ex. 1007 ¶ 55; Ex. 1014 ¶¶ 13–17).

Patent Owner argues that Becker and Valiyaparambil do not describe a “staging area.” PO Resp. 54–56. In effect, Patent Owner argues that a “staging area” is “an allocated portion of storage” and cannot be part of a server, and that Petitioner merely points to a computer server for the staging

area. *See id.* The broadest reasonable interpretation of “staging area,” however, does not preclude that staging area from being a part of a server, as we determined above. The data in Becker is being stored on some storage medium on that server. *See, e.g.,* Ex. 1007 ¶ 76 (discussing “[t]he data blocks in the replicated image [356]”). Thus, we determine that Becker describes a staging area as claimed.

*c. Recovery Process*

Claim 1 recites a step of “running a recovery process,” which the claim defines as the steps of “writing recovery changes to . . . recovery files” and “saving the . . . backup files and . . . recovery files.” Petitioner’s position is that journal 370 of Becker saves the recovery changes and that the backup files and recovery files are saved in journal 370 and replicated image 356. Pet. 51–54 (citing Ex. 1007 ¶¶ 37, 76–77, 105; Ex. 1002 ¶ 108).

Patent Owner argues that Becker and Valiyaparambil do not describe “running a recovery process.” PO Resp. 56–57. Specifically, Patent Owner argues that “the ‘861 Patent discloses two distinct phases,” that Becker describes a “post-storage process,” and that Becker “defers any potential recovery steps to the restoration phase.” *Id.* These arguments are similar to those made above with respect to Liu, and similarly are unpersuasive for not being commensurate in scope with the claims. Thus, we determine that Becker describes a recovery process as claimed.

*d. Virtualization Steps*

Claim 1 requires two virtualization steps. The first is a virtualization of the backup files into the staging area and the second is a virtualization of the backup files and the recovery files. Petitioner’s position is that the first virtualization is met when the replication image is made into a cloned image.

Pet. 50–51 (citing Ex. 1007 ¶ 76; Ex. 1002 ¶¶ 40, 106); Pet. Reply 8–9 (citing Ex. 1007 ¶ 77; Ex. 1014 ¶ 15). Petitioner’s position is that the second virtualization is met when the cloned image is used by applications. Pet. 54–55 (citing Ex. 1007 ¶¶ 37, 76–77; Ex. 1002 ¶¶ 102–103, 109); Pet. Reply 9 (citing Ex. 1007 ¶ 77; Ex. 1014 ¶ 16).

Patent Owner argues that Petitioner cites to the same disclosure of Becker for both virtualization steps. PO Resp. 57. We are not persuaded that Patent Owner’s characterization of Petitioner’s ground is accurate. The first claimed virtualization step is of the backup files into the staging area. Petitioner’s position is that the first virtualization in Becker is of backup image 356 into cloned image 372. Pet. 50–51; Pet. Reply 8–9. The second claimed virtualization step is of the backup file and the recovery files. Petitioner’s position is that the second virtualization in Becker is of cloned image 372 to the application. Pet. 54–55; Pet. Reply 9. We are persuaded that these are two different virtualizations (one of the backup, one of the clone). Therefore, we determine that Becker’s disclosure describes the two virtualization steps as claimed.

*e. Unmodified Backup File*

Claim 1 requires that the backup file “remain[s] unmodified” during the recovery process. Petitioner has two alternative positions for this claim limitation. Petitioner’s first position is that the backup file in Becker is unmodified because writes are redirected to, and stored in, journal 370. Pet. 51–52 (citing Ex. 1007 ¶ 77; Ex. 1002 ¶ 108). Petitioner’s alternative position is that Valiyaparambil describes a backup file and recovery files stored in the form of incremental snapshots, and that it would have been obvious to substitute this alternative form of backup into Becker’s system.

Pet. 52–53 (citing Ex. 1008 ¶¶ 21–23; Ex. 1002 ¶ 119); Pet. Reply 9–10 (citing Ex. 1008 ¶ 10; Ex. 1014 ¶¶ 18–19).

Patent Owner argues that the backup file in Becker is not unmodified. PO Resp. 57–59. Patent Owner’s argument, however, focuses on whether replicated image 356 itself is unmodified and not whether the backup file is unmodified. As Becker explains, once read/writable clone 372 has been created, backup manager 350 utilizes journal 370 “to maintain a copy of the original state of the replicated image 356 when the [clone] was taken.” Ex. 1007 ¶ 77; *see id.* ¶ 76. Thus, we determine that the backup file remains unmodified, even though portions of it may be moved to journal 370 in order to preserve that unmodified, “original state.” Ex. 1007 ¶ 77. Accordingly, we are not persuaded by Patent Owner’s argument.

Patent Owner argues, with respect to Petitioner’s alternative position, that one of ordinary skill in the art would not have combined Becker with Valiyaparambil in this manner. PO Resp. 59–60. Specifically, Patent Owner argues that “the approaches of Valiyaparambil and Becker differ in their approach to restoration of the backed up image to a desired point-in-time.” *Id.* at 60 (citing Ex. 2003 ¶¶ 210–213). Patent Owner argues that “unlike Valiyaparambil, Becker keeps the current replicated image closely synchronized with the primary image and free of the overhead of snapshot management.” *Id.* at 59. In this manner, according to Patent Owner, Petitioner’s proposed modification of Becker “changes Becker’s principles of operation.” *Id.*

Petitioner replies that changing from one method to another would be “trivial” and “a simple substitution that obtains predictable results.” Pet. Reply 9 (citing Ex. 1014 ¶¶ 18–19). Petitioner disputes Patent Owner’s

characterization of Valiyaparambil and Petitioner's declarant, Dr. Shenoy, testifies that Valiyaparambil, like Becker, keeps the backup closely synchronized. Ex. 1014 ¶ 18 (citing Ex.1008 ¶ 10).

Having reviewed the testimony of Drs. Weissman and Shenoy on this issue, as well as the other evidence before us, we are persuaded that it would have been obvious to a person of ordinary skill in the art to substitute the replicated image using a journal approach of Becker for the backup followed by update snapshot approach of Valiyaparambil. We are persuaded by Dr. Shenoy's testimony that these are both known options for achieving the same result. Ex. 1014 ¶ 19. Specifically, the evidence shows that both approaches are known ways of keeping an up-to-date backup that allows for storing incremental updates as well as for providing recovery to a prior point-in-time. Ex. 1007 ¶¶ 34, 37; Ex. 1008 ¶¶ 10, 13. Thus, we find that Becker keeps a replicated image with the changes stored in the journal, whereas in Valiyaparambil, the changes are kept together. Ex. 1007 ¶¶ 34, 37; Ex. 1008 ¶¶ 10, 13. Although both approaches require some internal processing to keep track of the various versions, ultimately, they achieve the same outward appearance of a backup mechanism that allows provision of data as it existed at various points in time. See Ex. 1007 ¶¶ 34, 37; Ex. 1008 ¶¶ 10, 13. Accordingly, we are persuaded that it would have been obvious to modify the system of Becker with the teachings of Valiyaparambil in the manner Petitioner proposes.

##### *5. Conclusion for the Becker/Valiyaparambil Combination*

Reviewing the record before us, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 1 of the '861 patent is

unpatentable over Becker and Valiyaparambil. Patent Owner does not argue separately the other challenged claims. We have reviewed Petitioner's assertions regarding claims 2, 3, 6, 7, 11–15, 18, and 19, and the evidence cited therein, and determine that Petitioner has shown, by a preponderance of the evidence, that those claims are unpatentable. *See* Pet. 47–60.

*D. Unpatentability in View of McInnis and Lal*

We determine that all challenged claims are unpatentable as anticipated by Liu and as obvious in view of Becker and Valiyaparambil. Therefore, we do not reach Petitioner's challenge based on McInnis and Lal, and we dismiss Patent Owner's Motion to Exclude McInnis as moot.

III.CONCLUSION

- A. Petitioner has shown by a preponderance of the evidence that claims 1–3, 6, 7, 11–15, 18, and 19 of the '861 patent are anticipated by Liu.
- B. Petitioner has shown by a preponderance of the evidence that claims 1–3, 6, 7, 11–15, 18, and 19 of the '861 patent would have been obvious in view of Becker and Valiyaparambil.
- C. Patent Owner's Motion to Exclude is dismissed as moot.

IV. ORDER

In view of the foregoing, it is hereby:

ORDERED that claims 1–3, 6, 7, 11–15, 18, and 19 of U.S. Patent No. 7,831,861 are unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude is dismissed; and

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FURTHER ORDERED that this is a final written decision and that 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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